A QUANTITAVE STUDY OF INFLUENCING FACTORS IN HERITAGE LANGUAGE MAINTENANCE

A DISSERTATION

SUBMITTED TO THE GRADUATE SCHOOL

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

BY

JAMES THOMAS MCALISTER

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BALL STATE UNIVERSITY

MUNCIE, INDIANA

MAY 2018

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BALL STATE UNIVERSITY

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Abstract

DISSERTATION/THESIS/RESEARCH PAPER/CREATIVE PROJECT: A Quantitative Study of Influencing Factors in Heritage Language Maintenance

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Heritage language families are families in which one or both parents are a native speaker of a language other than the dominant language of the national culture. When attempting to pass on the heritage language, parents have varying levels of success. Some children in heritage language families become native-like in their heritage language abilities while other children disregard the language and do not develop the skills to communicate in the heritage language. A great deal of qualitative work has been conducted on heritage language families, and some quantitative and mixed methods studies have been conducted in educational environments. These studies have revealed five common factors that may play a role in the child's heritage language development: attitude, identity, access to resources, community interaction, and parental modeling. These factors have been discussed in numerous studies, but never have they been compared to their fullest extent. The purpose of this study has been to provide an example of how to use statistical analysis to uncover the extent of influence these factors

have. This study may allow researchers to better understand what factors are most influential in motivating heritage language maintenance. The results of a survey were analyzed using Kruskal-Wallis nonparametric testing with Mann-Whitney U post-hoc analysis to test for significance alongside multiple regression analysis to examine the strength of the correlations. The results reveal a number of significant findings, particularly in relation to access to resources. The regression analysis also reveals strong correlations involving identity as a factor. These statistics could be used as an initial benchmark to examine larger sample sizes as well as more condensely designed studies. Nonetheless, improving the child's connection to a balanced identity seems to be a direction for developing balanced skills in both the heritage and national languages. With the proper use and access to resources, children will also have more opportunities to study the heritage language.

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First and foremost, I would like to thank my teachers, mentors, students, friends and family. Each collective has inspired me, guided me, and encouraged me in different ways. Without these people, I would not have found myself at this time and at this place.

My teachers have long been supportive of my willingness to be engaged in critical thought. From my high school English teacher, Tamalyn Glasser, who once wrote on a literary analysis, "Thom McAlister, PhD of English, I can see it now" to the dissertation committee before me today, including Dr. Megumi Hamada, who gave me the opportunity to finally collaborate with other students and present at SLRF; Dr. Seig, who hired me to teach in the Intensive English Institute, who I have both laughed and cried with; Dr. Stallings, who told me that "Muncie has an excellent gifted and talented program" and sold me on this community when I was deciding which program to attend, and Dr. Chang, who has been a friend and offered much encouragement. Also, I need to thank Dr. Eouanzoui, who was integral is teaching me how to process these statistics.

My mentors, a list of individuals who guided me outside of the classroom in order to help me become a better writer, thinker, and teacher. Most notably the poet George Eklund literally offered me a stage on which I could develop a voice as a writer. More recently, Dr. Steve Chalk and Dr. Mai Kuha have aided me in moving from the ESL sphere of instruction to teaching university-level classes.

What I have learned is that success is purely a matter of enduring and doing. Completing this research project and writing this dissertation were challenging because the world demands so much of us. Like fictional characters who are pinned down and nearly defeated, the response that one must redouble one's efforts to push forward is possibly the greatest lesson that I have learned. We should not measure ourselves by standards, but rather follow paths that we create for ourselves. Although I have struggled greatly with mental, emotional, and physical pains, I have done the things that I wanted to do in the end.

My students, particularly those in China and Korea, forged my desire to become more educated. I long to ensure that each student has a teacher who is both capable and compassionate. It was my experience teaching abroad that made me want to attain a Master's degree and then a Ph.D. I hope to do my part in ensuring the future generations of teachers are well-prepared for the challenges of teaching non-native English speakers.

Finally, my friends and family—I thank you the most. My wife, Hongmei, and my daughters, Calypso and Elena—I hope that I am able to do everything you need me to do. I hope that I will always be able to provide for you. My mother, Donna, and my step-father, Willis—both of you helped shape and reinforce the person I chose to become. Everyone who has helped me stand when I fall or smile when I want to cry, thank you. Thank you all.

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Chapter 1 Introduction

1.1. Background Information

The United States of America has long held the belief that it is a melting pot of world cultures. When looking at population statistics, we can see that this is a decently supported claim. The Migration Policy Institute (2016) states that there are more than 41 million foreign-born immigrants living in the United States based on 2013 U.S. Census data. Also, according to a 2010 Census Brief, 2.9 million people identify as being indigenous (Norris, Vines, & Hoeffel, 2012). Another 2.3 million identify as being partly indigenous. In all, 20.9% of American households report speaking a language other than English at home (U.S. Census, 2014). With the popularity of English as a Second Language worldwide and the ever-increasing diversity of people in the United States of America, language contact between English and most other languages in the world are constantly occurring. *Ethnologue* (Simons & Fennig, 2016) notes that there are approximately 339 million native speakers of English and more than 430 million speakers of English as a second language worldwide. With such a large number of English speakers that are interacting in bilingual environments, whether they are bilingual themselves or living in a country that operates with more than one language, there is a constant influence of multiple languages occurring at any given moment.

Unfortunately, alongside the diversity of cultures, a mass extinction of languages is currently happening around the world with a majority of languages being endangered (Simons & Fennig, 2017). While numbers vary from source to source, the Endangered Language Project, which is co-coordinated by the First People's Culture Council and a team from the University of Hawaii at Manoa, claims that more than "40 percent of the

world's approximate 7,000 languages are at risk of disappearing" (*Catalogue of Endangered Languages*, 2017). The Linguistic Society of America maintains a Committee on Endangered Languages and Preservation (CELP), which was established in 1992 (*Linguistic Society of America*, 2012). The maintenance and preservation of minority languages are key responsibilities for many linguists.

Due to the diversity of languages spoken within communities becoming endangered, research is needed to better understand how some languages thrive while other languages flounder. For example, in regards to communities in the United States of America, Fishman (1966) wrote, "language maintenance in the United States is currently strongest among those immigrants who have maintained greatest psychological, social, and cultural distance from the institutions, processes, and values of American core society" (p. 396). Fishman foresaw the value in the linguistic resources that existed in the U.S. However, the conclusion that he came to revealed a choice between a segregated society and an assimilated society. As globalization has come to the forefront, the value of a second language becomes more vivid. At the time of Fishman's writing, community schooling by ethnic groups was the "most active" form of language maintenance (pg. 393). While these forms of non-formal education are still powerful resources within communities, more mainstream forms of education have been established to aid in the acquisition of languages other than English.

To better understand current research into heritage languages, one may examine Guardado's study (2014) on discourse relating to heritage language maintenance. This particular study used a meta-analysis of research to examine themes that existed in discussions related to heritage language development. In meta-analysis, themes are

common and repeated concepts that relate to the topic at hand, and discourse refers to the language that is used and interactions that occur when discussing the topic at hand. Guardado took discourse from both the interviews he conducted of minority language speakers as well as the articles that he had researched and analyzed.

Guardado's analysis revealed strong themes relating to the concepts of utility, cohesion, identity, and affect. These themes provide a framework for discussing motivating factors in heritage language maintenance and can be exemplified in how related research studies have discussed heritage language development. Utility, which refers to seeing value in maintaining the heritage language, is a key element in Zhang's research (2012; 2009), which will be discussed below. Cohesion embodies the community focus that Fishman (1966) discusses; this concept is also key to other studies that reveal an important role being played by communities of practice and non-formal community educational resources (Chhoun, 2011; Nesteruk, 2010; Jeon, 2008; Lee 2006). Chhoun (2011) argues that the heritage language speakers of less commonly taught languages, such as Khmer, which may be forgotten in the push for more economically-valued (i.e., more widely spoken) languages, has a strong need for community support. However, the concept of identity—how an individual defines oneself—seems to appear most commonly in the current research (Conteh & Riasat, 2014; Oriyama, 2010; Zhang & Slaughter-Defoe, 2009; Lee, 2002). The ties that connect language identity and cultural identity are tightly entwined due to the connection between language and culture; thus, separation of the two is difficult. Lee (2002) notes that maintaining multiple cultural identities can be a challenge for young adults, and that "those who are more proficient with the heritage language tended to be more bicultural".

Also, one study of Japanese heritage language speakers in Australia noted that language shift (changing what language one speaks) leads to an identity shift (changing one's view of the self) (Oriyama, 2010). As for affect (one's emotional situation), a couple of researchers have noted that being a heritage language speaker can improve one's emotional well-being (De Houwer, 2015; Liu *et al*, 2009).

Therefore, in an attempt to focus these concepts into a framework for this research, the following terms will be used and further discussed in the following chapters:

- Attitude—How individuals express their beliefs, specifically related to language and culture (Crystal, 2008)
- Identity—How individuals sees themselves and how others see them, specifically being a member of a particular linguistic/cultural group (Oriyama, 2008)
- Resources—Anything that might be able to provide aid, specifically materials, facilities, and capital for the purposes of learning a heritage language (Lao, 2004; Zhang, D. 2012; Mu & Dooley, 2015)
- Interaction—Experiences dealing with other people, specifically the use of language with particular individuals and groups (Gass & Mackey, 2015)
- Modeling—The act of demonstrating how to perform an action, specifically how parents use language in the presence of their children (Comeau, Genesee, & Lapaquette, 2003)

1.2 Statement of Problem

This current study hopes to bridge a gap that exists in the study of heritage language maintenance. No previous research has made an attempt to examine all of the discussed factors—attitude, identity, access to resources, community interaction, and

parental modeling—using quantitative methods. While an attempt has been made in terms of quantitatively descriptive research (Lao, 2004), and some research has looked at one or two specific factors using quantitative methods (e.g., Kim & Pyun, 2014; Mishina-Mori, 2011; Lee 2002), these studies have been understandably limited in scope. Hopefully, the current study will help provide a deeper understanding of the factors that help or hinder a child's learning of a heritage language. The ultimate goal would be to find a clearer direction for future research. By examining these factors simultaneously, we will be able to narrow down paths for future research into heritage language learning maintenance.

On a side note, as stated before, the role of code-switching usage among heritage language learners has largely been ignored beyond vague mentions that occur in several qualitative studies (Zhang, D., 2012; Zhang, J., 2009; Zhang & Slaughter-Defoe, 2009; Oriyama, 2010). While Lao (2004) provides a highly insightful survey of parental attitudes and resources of bilingual learners in San Francisco, no mention of code-switching was made. Mishina-Mori (2011) is very narrowly focused on the interaction and modeling of parental language and code-switching. Therefore, a solid foundation of understanding of the role of code-switching in heritage language research is greatly lacking. Code-switching research is often limited to syntactic examinations of the languages used. A number of studies have attempted to describe possible constraints in how code-switching can be used in the structure and grammar of combining two languages, such as the free-morpheme constraint (Poplock, 1981), Government Binding (Di Scullo, Muyshken, & Singh, 1986), and the Matrix-Language Frame (Myers-Scotton, 1995). These grammatical studies often focused on hypothetical examples of code-

switching; however, research into the documented code-switching practices of a variety of communities and individual families has challenged the propositions posited in each of these constraints (Arias & Lakshmanan, 2005; Nishimuri, 1997; Benthahila & Davies, 1995; Belazi, Rubin, & Toribio, 1994). These sociolinguistic studies provide evidence of the deeper linguistic nature of code-switching. Heritage language research may be a field that will allow for further research into such phenomenon; therefore, a side goal of this study is to see if code-switching plays a role in heritage language maintenance when examining this topic quantitatively.

Nonetheless, a lack of research exists in what motivates one to learn the language of their parents and/or grandparents, and the goal of this study is to fill in aspects of this gap. Many questions exist in the mind of the author: Why do some children revel in their heritage culture while others reject theirs? How are children learning their heritage language? How can we help guide the healthy promotion of heritage language learning? These questions will not necessarily be addressed here, but today's research will help guide the way in which we address those questions.

1.3 Goals and Significance of the Study

The purpose of the current study is to examine the way in which the influential factors in heritage language learning may relate to heritage language maintenance. This research study will be a first attempt to quantify these common themes in heritage language learning discourse for the express purpose of guiding future research and policymaking for heritage language communities. If we, as linguists, are better able to understand what motivates children to learn their heritage language, we may be able to

combat the forces that lead to language death and improve the livelihood of minority language cultures.

Chapter 2 Literature Review

2.1 Introduction to Literature Review

The following review of literature will examine the foundation on which this study was developed with a particular focus on each of the factors (attitude, identity, access to resources, community interaction, and parental modeling) that this study will investigate. Individual sections of the literature review will address each factor in detail. The first of these sections focuses on the role of identity and how it has been shown to influence the heritage language learner. The second section will address the role of attitude and how research has revealed it to be expressed by and influential to the heritage language learner's perceptions. The third section will focus on the role of material resources that might aid in improving the quality of heritage language learning and to what extent these resources have been implemented into the teaching of the heritage language. The fourth section will examine the role of interaction and the opportunities that heritage language learners have in order to use their heritage language. The fifth section will discuss the role of modeling, which is the act of parents interacting with their children in the family's heritage languages. The fifth section will summarize what has been learned from the articles previously discussed in this literature review. A final section will examine other studies of interest that combines factors in a way that make them more difficult to classify into a specific category.

2.2 Identity

2.2.1 Definition of identity. Researchers have provided various definitions of identity by building upon previous definitions. One long-standing definition of identity

comes from Norton (1997), which states that identity is "how people understand their relationship to the world, how that relationship is constructed across time and space and how people understand their possibilities for the future." While this definition acknowledges the malleability of identity, the definition lacks in how identity is influenced. Lee (2002) incorporated the concept of culture with the definition of identity by stating that identity involves "awareness of one's own culture and a recognition of the social group to which one belongs." Oriyama (2010) explained the connection between "attitude and behavior" as being formative in the construction of identity as follows:

> …[Identity] refers to who we believe we are, a construct which is expressed in our attitudes and behaviors, and which consist of ethnic, linguistic, and cultural identities…identity develops when people become aware of the way they differ from others around them…internal and external, involving both self-categorization and categorization by others.

The Oriyama definition of identity encapsulates a myriad of factors (ethnicity, language, locality, etc) that play a role in the dynamic relationship between the self and language. This concept of a multifaceted identity was further developed by Leeman, Rabin, and Roman-Mendoza (2011), who defined identity as "multifaceted and performative", noting the "role of language in constituting and shaping subjectivities". This "role of language" has become a guiding force in linguistic and educational research because language provides behavioral evidence that can be correlated with other aspects of identity (cultural, ethnic, etc.) in research. Most recently, Cho (2014) defined identity as being a dynamic aspect of human personality, stating "Identity is an ongoing process between internal definitions of the self and external definitions offered by others." Thus, Cho's definition of identity is strongly situated in one's understanding of self and a signifier of group association. Therefore, in this study, identity is defined as the malleable

quality of one's concept of self and one's group associations, which are influenced by language usage and cultural experiences.

2.2.2 Research on identity in heritage language learning. Research related to identity and heritage language learners have focused on three major areas: correlation studies, heritage language education, and negative effects. The correlation studies highlight how those who identify with their heritage language culture more or less range in language proficiency. At the same time, heritage language education studies reveal the effects that community programs have on heritage language learners. Meanwhile, studies revealing negative effects discuss how specific situations may hinder heritage language development and encourage individuals not to identify with their heritage language culture.

Heritage language and identity. One study (Lee, 2002) that examined the connection between identity and heritage language was a quantitative correlation study. This study surveyed 40 Korean-American college students living in the United States. The participants were asked questions related to Korean language use and proficiency, and they were rated on a scale of cultural identity, which was used to determine how closely the students were connected to Korean culture. The participants were assigned to high and low Korean language proficiency groups, which were subjected to Chi-square and t-test analyses. Significant differences were noted, based on the amount of language use; high proficiency students used Korean more while low proficiency students tend to use mostly English. High proficiency students were more likely to identify themselves as Korean, and low proficiency students were more likely to identify themselves as American. The results revealed an overall stronger correlation with Korean identity and

language usage among the female participants. Male participants were more likely to claim their identity to be solely Korean or solely American while females held more balanced perspectives by claiming a dual Korean-American identity. Addressing the main question of the relationship between language use and identity, a regression analysis revealed a positive relationship between the two factors, which is to say that the stronger an individual identified with their heritage language culture, the more likely the individual was to use the heritage language.

Similarly, in another study, Comanaru and Noels (2009) noticed that heritage language learning was "an integral aspect of their self-concept" when examining motivational factors in language learning. The study sought possible relationships between identity and types of motivation for learning Chinese. The study included 145 Canadian university students enrolled in Chinese language courses. The participants completed a questionnaire, which included questions about their first language (L1) and their parents' L1. The participants were split into Chinese who spoke Chinese as an L1, Chinese who spoke English as an L1, and non-Chinese participants. Although the Chinese students indicated that "Chinese" was their L1, this group included members who spoke any variety of Chinese-related language, specifically Cantonese, Hakka, Fujianese, and Taiwanese as well as the most widely used form of Chinese, Mandarin. The terms of motivations that were examined included intrinsic motivation, regulation (extrinsic motivation controlled by specific factors), and amotivation (a lack of motivation). The majority of students from all three groups (Chinese L1, English-L1 Chinese, English-L1 non-Chinese) aligned with identified regulation, which is motivation based on having a clear extrinsic reward (i.e., grades). For Chinese L1 and the English-L1

Chinese, integrated regulation ranked second highest; integrated motivations are those factors that relate to one's belief and needs. Third for the Chinese-related groups was intrinsic motivation. For the non-Chinese group, intrinsic motivation ranked second, and external regulation (seeking reward/avoiding punishment) ranked third. Amotivation was the lowest rating for all three groups. For the English-speaking Chinese group, self-identification of the Chinese ethnicity was a common theme when asked why they had chosen to study Chinese. One goal of the study was to evaluate the effect of L1 status on their motivation for learning Chinese; the analysis revealed that both Chinese groups did not have significantly different effects. In other words, the L1 was not likely to be the motivating factor. On the other hand, the non-Chinese group was significantly different; therefore, heritage culture may be a source of motivation to learn a language.

Heritage language education and identity. While Fishman (1966) is touted that highlighting the importance of community heritage language programs, most of the research into such programs is recent. Oriyama (2010) investigated identity construction of 19 Japanese heritage language youths that lived in Sydney, Australia. These participants were classified into three groups based on their social networks. First, the "individual" bilinguals were young people who were not very well connected to the Japanese community in Sydney, but attended a community program for learning Japanese. The second group included "community" bilinguals who were a part of a strong Japanese language network in Sydney. The third group consisted of "community contact" bilinguals, some of whom attended the same school as the "community" group, but were not part of such a tight network. Surveys, interviews, and documentation of Japanese language proficiency were collected to provide data for the study. In the interviews, some

of these individuals identified themselves as Japanese, a mix of Japanese and another culture (one, in particular, focused on the fact that his father was British, and thus chose British as part of his identity), or Australian. In one case of the exclusion of Japanese identification, the teenager had experienced discomfort in her travels to Japan due to culture shock—while she knows some of the language and culture, the sharp contrasts in the pragmatic sphere of public conduct had shown her that Australian culture had been deeply engrained into her personal development. Another girl, who identified as Australian, focused on how her peer group is Australian. The education the teenagers received instilled language and culture as the context of socialization; thus community may have dictated linguistic forms, and the linguistic forms might be sculpting identity. One of the teenagers, who had identified as Japanese only, struggled greatly in his earlier socialization, experiencing bullying, and not integrating with his European-background classmates. Eventually these issues were overcome, but this negative socialization strengthened his Japanese identity. Overall, "community" and "individual" bilingual groups were more likely to identify as Japanese Australian (or Japanese-Other) than the "community contact" bilingual group. However, the "community" and "community contact" bilingual groups had higher proficiency ratings in speaking Japanese. The small sample and mixed results prevent strong claims from being made. Nonetheless, Oriyama's conclusion was that identity and language use were influenced by the community networks. Therefore, while identity is a valuable asset for language learning, having an environment that allows for community contact (which will be discussed more in the Interaction section) also plays a very important role in heritage language learning.

This union of identity and community is echoed in the Leeman, Rabin, and Roman-Mendoza (2011) research on critical service-learning pedagogy and Spanish heritage language learning. The underpinning of this research involved the concepts of critical pedagogy and service learning. Critical pedagogy, as noted in the study, is a methodology in teaching that seeks to empower students to become active citizens that are able to question and understand hierarchies of power. The authors state that critical pedagogy has application in heritage language learning because of the focus on concepts of identity and agency. Leeman, Rabin, and Roman-Mendoza write:

> Critical pedagogy takes up issues of identity, and sees education as a site where students are socialized into particular subject positions and social roles. Rather than socializing students as unquestioning recipients of dominant social and linguistic hierarchies, critical educators seek to identify and challenge educational practices that reify those hierarchies and power relations.

By helping students construct and understand their own identity in relation to their heritage language culture, critical pedagogy establishes its value in heritage language maintenance. The other pedagogy incorporated into this research is service learning, which is an approach that seeks to apply learning outcomes in community projects. In this particular case, Spanish heritage language college students were given the opportunity to work with elementary school students learning Spanish as a heritage language. The university students created blogs and wikis as part of the project and were given questionnaires. Each of these products was analyzed to "assess the impact of this activist project on the college students' identity formation and sense of their own agency". The results revealed that 78% of the participants felt very positive about the experience, not only gaining improved skills in their heritage language but also pride in

their heritage culture. Therefore, it seems that the ability to develop one's identity in service of the community encourages and motivates heritage language learners.

In another study on community programs for Japanese heritage language learners, Endo (2013) conducted an ethnographic study on how identity was expressed in the American Midwest. The study discussed the history of such programs and the immigrant experience in the United States from the late 1800's through the tumultuous World War II internment camps and the anti-Japanese era to modern implementations in order to reveal how community language programs had developed. The study focused on three parents living in large Midwestern cities in which the Japanese population constituted the smallest cultural minority. The participants were interviewed, and participant observation and document analysis were also used to conduct the research. The children of the parents ranged from age 9 to age 19, and the median grade of completion for the community Japanese program was grade 5. The Japanese programs are community-run; however, they have been developed in line with official standards of Japanese education as set by the Japanese Ministry of Education. These programs, referred to as *hoshuko*, not only provide education for the community but also for children of short-term residents who will return to Japan. Endo discusses the participant observations through site visits to the community programs, noting how the students were able to conduct themselves appropriately according to the standards of Japanese culture. Nonetheless, one reoccurring theme in the study involved the division between the dominant Eurocentric culture that the children lived in and the strong influence of the parent's Japanese identity. For example, one of the parents is quoted as saying, "We are Japanese. [White] Americans speak English in this country. English is needed for everything…basic

survival even. But my children, they are Japanese by blood. It makes sense that they know Japanese as well as they know English." Furthermore, the study points out that non-Japanese students attending the community program have a more personal interest in learning the culture whereas the Japanese heritage language students are often pressured by their parents to attend the program. The demand to attend the program from the parents to the children has not helped attendance, as half of the children dropped out before graduation; the highest level of completion was grade 10, and the highest level among those still attending was grade 6. The findings revealed that while the programs were able to provide cultural instruction to develop identity and community, the program suffered from high attrition rates due to qualities particular to two identifiable categories of Japanese heritage students, "the sojourner youth were usually only in the United States for a short-term stay, whereas the second-generation youth were American citizens whose primary focus was graduating from the United States K–12 schools." Thus, the study suggests that while heritage language programs are able to aid in building identity, the immigrant students' needs are not met due to the local dominance of English.

Similar to how the Japanese programs introduced appropriate cultural behavior, Snyder-Frey's (2013) study of Hawai'ian language revitalization reveals more about the concept that identity involves performance. This study deeply examined the history of how the Hawai'ian language ebbed and flowed from being the dominant language of the islands to falling in need of revitalization and the efforts that have been made to maintain the language in Hawai'i. The author conducted interviews with heritage language learners in order to understand the impetus that has allowed the revitalization efforts to flourish. Snyder-Frey notes that it is not necessarily authenticity, emulating the culture in a

traditional or historical manner, that has played a major role, but rather the performative efforts—the act of using the language—of struggling to "negotiate their group membership and affiliation through symbolic systems, including language, so that social identities are constituted by action and interaction." The interview participants focused heavily on "traditional Hawaiian values" of family and ancestry. Participant responses referring to *kuleana*, which means something akin to "responsibility" and "charge" (as in ownership), was a common theme for those who were attempting to maintain their heritage language. This "responsibility" was described as not being an individual responsibility, but rather a communal one that is revealed through actions, such as promoting the culture, history, and the language. Moreover, Snyder-Frey noted that interviewees disagreed with the concept of defining Hawai'ian heritage via the percentage of one's ancestry which was full-blooded Hawai'ian natives. One interviewee commented on *kuleana* as follows: "It's about the heart and determination to be LOYAL to the people you love, your culture, and your COUNTRY…Does my loyalty not matter since I am portugese, puertorican, spanish, etc…? [sic; original emphasis]" Acting in accordance to the culture with "an emphasis on 'ohana (a broad, largely kin-based social group), shared-resources, sibling-caretaking, and peer-orientation" were more valued aspects of the Hawai'ian identity. Thus Synder-Frey concludes that identity as a performative aspect of culture plays a very important role and should not be overlooked in heritage language maintenance and education.

Negative effects between identity and education. Liang (2006) investigated how code-switching in the ESL classroom relates to identity and the cultural capital metaphor. The cultural capital metaphor is used to encourage heritage language being used as a

currency to enable the individual. This will be discussed more in-depth below. The author views code-switching—the use of two or more languages within the same conversation, sentence, or phrase—as a social function of language. Forty-nine Chinese L1 high school ESL students were interviewed on their use of L1 and L2 in the classroom. Conversation data and transcripts were also collected from classroom observations and recordings of group activities. The data analysis consisted of grouping similar responses to interview questions, and analysis of conversations that occurred during group activities. Over half of the students (57%) stated that they used L1 in the classroom for asking for clarification from other classmates. Some students (47%) also stated that they used the L1 for the purpose of socializing with other students. Only 18% of the students claimed to speak English most of the time in the ESL classroom. The majority of the students (78%) felt that they spoke little English, and two students felt that they did not use English at all. When asked about feeling peer pressure, 53% of the students affirmed that peer pressure was an influence on their linguistic choices. When asked in an open-ended question to explain the peer pressure to use Chinese over English, most of the responses related to issues of solidarity with fellow students, e.g. fear of being seen as boastful, fear of excluding friends from the conversation, and fear of rebuke for not using Chinese. Some also would not use English out of fear of embarrassment for speaking ungrammatically or unclearly. The analysis of the group activities revealed that the majority (67%) of English use was during classroom tasks, while only 33% of the English usage was linked to social interaction. Moreover, the English was much more common for completing low-level tasks whereas the L1 was more common in high-level tasks that involved reasoning. The authors also noted that most of the students (61%) felt that they should have moved into

the regular classroom, and these responses seemed to signal that the ESL classroom environment encouraged L1 usage to be socially accepted. The findings from this study indicate that a conflict between the community preferences (i.e., using the L1) and the requirements of the program (i.e., demonstrating L2 proficiency) exists. As a consequence, it seems that a student who wants to be successful in learning the second language might risk ostracization.

Moreover, the malleable concept of identity as discussed in the definitions can be shown to have consequences for those who are caught in-between without a strong, singular identity. Wu, Lee, and Leung (2014) conducted a qualitative study to examine the mental investment in a Chinese heritage language program. This ethnography involved interviews and participant observations of 22 middle school students at a charter school that offered Chinese language courses. The study found that one of the major issues is the fact that Chinese is not a single language, but rather a collection of languages that are related by geography, script, and historical contact. While the school only offers Mandarin in their Chinese language program, the heritage language of many of the students was actually Cantonese or Fujianese. At least two students had Vietnamese as a heritage language, and at least one had Indonesian as a heritage language. For these students, learning Mandarin as a heritage language was not addressing the full extent of their families' heritage. Only nine of the 14 students who were described had Mandarin as an aspect of their heritage language background. Of these 14 students, only four stated that they would likely continue to learn Mandarin. Because Chinese is not a homogeneous language culture, students seemed to lose motivational interest in investing more into studying the language.

Moreover, the considerations that families have made for their children's future have been detrimental to the motivations for learning a heritage language. Wu, Lee, and Leung (2014) state:

> They often failed to develop proficiency in their HLs and/or refused to use their HLs, seeking instead to strengthen their ties with dominant English-monolingual culture or distance themselves from fellow Asian Americans. It is possible that under the dominant discourse that prioritizes a national identity that only speaks English, many of the HLLs' desired future communities are not Asian American communities who are bilingual or multilingual, but English-monolingual Anglo communities, and thus they might have little intention to invest in learning their HLs. (pg. 21)

The need to develop an identity will aid in integration with the dominant society. In order to pave the way for perceived future success, a situation is needed in which the individual must make a decision to fully develop a cultural identity based on heritage culture or a national identity based on the dominant culture in the region. When these individuals are not provided with appropriate opportunities to invest in learning their true heritage language, their choices for cultivating an identity may seem more limited.

2.2.3 Summary of identity-focused research. The research related to identity in heritage language learners has raised a number of issues to be considered in heritage language learning and maintenance. First and foremost, it seems that identifying with one's heritage culture improves the likelihood of heritage language maintenance. The impact of community seems to increase this likelihood but, it may or may not be a more influential factor—which this study hopes to reveal. Second, a conflict between the heritage culture and the dominant culture forces individuals to make a serious choice due to difficulties balancing both, and community plays a major role in the choice that the individual ultimately makes. Nonetheless, opportunities to actively learn the heritage

language and participate in a heritage language community strongly align with one's acceptance of a heritage language identity.

2.3 Attitude

2.3.1 Definition of attitude. According to Azjen (1988), the term "attitude" has long existed in the social sciences to discuss one's beliefs in relation to a specific topic. Azjen's own definition states "An attitude is a disposition to respond favourably or unfavourably to an object, person, institution, or event" (p. 3). A combination of verbal expressions and non-verbal reactions may be used to assess attitude; however, these aspects might not necessarily reveal the same attitude. In relation to language, attitude has been defined as "…the feelings people have about their own language or the language(s) of others. These may be positive or negative…" (Crystal, 2008). The studies introduced in this section focus almost exclusively on the parental attitudes of their respective heritage languages. In many cases, the community seems to codify these attitudes in customs, which in turn influences the parents, and thus the children of these heritage language communities.

2.3.2 Research on heritage language attitudes. Research related to attitudes and heritage language learning can be separated into two areas: endangered languages and non-endangered languages. Endangered languages are languages that are "at risk of becoming extinct within the foreseeable future" (Crystal, 2008). The research on endangered languages is vital to efforts for revitalization, and language attitude is one factor that has been examined. Non-endangered languages are languages that thrive in a region but are not dominant; however, in a heritage language situation, these languages often suffer from declining speaker populations as well.

Attitudes towards endangered heritage languages. As will also be noted for non-endangered languages, the research on attitudes towards endangered languages uncovers a disconnect between the stated appreciation for the endangered language (and the disapproval of the dominant language in the region) and the actual usage of the endangered language. Then main difference between endangered and non-endangered languages is the possibility that if usage of the endangered language is not increased, then it could become extinct.

In one study of Quechua, a language that is indigenous to the Andes region of South America, King (2000) was based on Azjen's definition and the disparity between verbal and nonverbal behavior. The author interviewed 51 adult members from two separate Quechua communities and reported a number of informal conversations in the study. The participants stated that Quechua is commonly associated with "informal, private, and humorous situations", "traditional settings", and conversation with elders. Moreover, a large majority of the respondents claimed to hold positive attitudes towards the heritage language. At the same time, the participants who were parents stated that Spanish, the dominant language, should be their children's first language. Some parents claimed that the preference for Spanish was in line with their children's own wishes, and some parents confirmed that they exclusively speak Spanish in the home. While the use of Spanish is stressed for practical reasons, the participants would claim limited abilities in Spanish or express negative attitudes over its usage. Elders would claim that Spanish was impeding on the linguistic competencies of the local youth, yet younger adults believed that academic success, which can lead to economic success, could not be attained by only learning Quechua in schools. These conflicts in attitudes and behaviors

create confusion in the youth that may be the target audience for heritage language revitalization programs. The feelings created by the conflict between economic advancement and heritage language maintenance have resulted in lowered motivation to actively participate in learning the heritage language.

Similar discrepancies in behavior can be noted in other endangered languages worldwide. Another example of this issue with attitude is found in Mishra and Rahman (2013), which investigated the Gulgulia language in India. Gulgulia may be considered an endangered language due to the small size of its community. These communities are nomadic, and the children are not often educated in the school system. Due to their nomadic nature, the community is mostly multilingual. The authors point out how this multilingualism and language attitude interact as follows:

> …the members of the Gulgulia community exhibit a very positive attitude towards their language and wish to see it promoted, yet the members mostly need to revert to the use of dominant languages for earning their livelihood as communication in dominant languages fetch them more profit…The more they bring words from dominant languages in their communication, the more admiration they earn from their peer group. (page number).

In the study, the authors interviewed and recorded the speech of 20 Gulgulia speakers in order to examine the code-switching practices. The observations also revealed that the Gulgulia speakers were incorporating words from more widely spoken Indian languages and subsuming these terms into their own language. The authors concluded that code-switching has become the norm for this particular community and furthermore, argue the importance of providing support to increase awareness of heritage language revitalization. While this study helps to exemplify an extreme case of code-switching in a linguistically diverse part of the world, the positive attitude of the speakers towards their

heritage language implies that reverence for one's heritage language may simply be lip service to avoid ostracization from one's own community. While these individuals may speak well of the heritage language, they are less likely to actually speak their heritage language.

In both cases of Quechua and Gulgulia, it can be clearly noted that a positive attitude towards one's heritage culture is simply not enough to maintain an endangered language. A lack of economic advantage causes minority languages to suffer from a loss of speakers due to the fact that the dominant language is required for survival in such environments.

Attitudes related to non-endangered languages. Non-endangered languages also have trouble in the presence of more dominant languages (like Spanish in the United States), and those dominant languages become favored over the heritage languages. The following research discusses non-endangered languages of immigrant families and attitude towards their heritage language. Also, education seems to relate to attitude as well, whether or not it is inside the home or supported by the parents in bilingual families.

Yan (2003) examined the language attitudes and family language policies among speakers of four different languages (Arabic, Chinese, Hebrew, and Spanish) living in the United States. The participants consisted of 18 Arabic-speaking parents, 16 Chinese-Speaking parents, 21 Hebrew-speaking parents, and 10 Spanish-speaking parents, all of whom had their children enrolled in heritage language schools. The study consisted of a 13-question survey and a 7-question interview. The survey responses revealed that the Arabic and Chinese speakers

were most likely to use the heritage language at home most of the time. Of the Spanish-speaking families, only 50% used Spanish in the home most of the time. Of the Hebrew-speaking families, less than 5% used the heritage language when communicating with their children. Similar patterns emerged when inquiring about the importance and value of the heritage language. Among the Arabic, Chinese, and Spanish speakers, 83%, 68%, and 50% respectively found the heritage language as important while only 38% of the Hebrew speakers found the language to be important. 60% of the Arabic speakers, 54% of the Chinese speakers, and 40% of the Spanish speakers believed that the heritage language aided their children's academic abilities. At the same time, only 19% of the Hebrew speakers believed that the heritage language would help their children academically. When asked about why the parents wished for their children to learn the heritage language, the majority of responses included answers related to maintaining cultural values and building appreciation for their heritage.

One of the limitations of Yan (2003) is that the study examined the attitudes and perceptions held only by the parents. The "students' school success is closely related to parental involvement and the way in which classroom teachers interact with the students and their families; therefore, the voices of the CLD [culturally and linguistically diverse] students' parents should not be silenced." This study implies that while attitudes may vary among these particular cultures living in the United States, a connection exists between the parents' (and possibly the community's) engagement with the children and the children's abilities to learn the heritage language.

In a related study of how the attitude of teachers, specifically English as a Second Language teachers, may affect their students' perceptions of the value of a heritage language, Suarez (2008) claims that "to promote heritage language development simultaneously with the acquisition of English in and out of the classroom" would benefit heritage language learners. The author reviewed a corpus of 39 other studies that researched second and third generation child who were heritage language learners and ESL students. The studies found that participants preferred English, yet desired to have access to their heritage languages. Teacher attitudes towards English expressed a more positive perception of English in comparison to the heritage languages. Moreover, Suarez added that, "the notion that native born ELLs are not interested in learning English is not supported in the research literature"; however, trends in heritage language maintenance depended on a number of factors that influence the child's attitude (parents, peers, use of heritage language in the home, etc.). According to the author, studies in academic achievement and attainment of English showed positive correlations with heritage language competency. Hence, positive attitudes towards the heritage language seem to lead to improvements in both the heritage language and English.

Moreover, a range of attitudes and internalizations, which may be influenced by the family's social network, exist for children in heritage language families. In case-study interviews with school-aged Chinese-English bilingual children, different children were shown to have varying degrees of appreciation for their heritage language (Zhang, J. 2009). In the first case, a 10-year-old boy was thrilled to have access to multiple

languages, even commenting on learning some basic Spanish and knowing a little of his parent's native Shanghainese, a language that is mutually unintelligible with Chinese Mandarin. The child's responses were in code-switched Mandarin and English. His father follows a Mandarin-only policy, while the mother has taught her son both Mandarin and English. However, the boy lives in a closed network with his parents and sister where their media access is limited to mostly Mandarin-language products (television shows, computer software, etc.).

The second case involved a 14-year-old girl, who responded in Mandarin only, describing her home as having a strictly Mandarin-only policy that was enforced by her mother (no mention is specifically made about the father). Her family is strongly connected to a community program for teaching Mandarin, which her sister and she have attended. While her family is heavily focused on using the heritage language, she speaks English with her sisters, but switches over entirely to Mandarin in the presence of an adult Mandarin speaker. The third child interviewed was a 17-year-old male who responded only in English, which he claimed was the language that he prefers to use with his parents. Although he had been taught Mandarin by his mother, they have had little access to a network of Mandarin speakers or resources. His father speaks an array of regional Chinese languages as well as English, yet the family members that he visits in China prefer to practice English with him. Taken together, Zhang (2009) concluded that the positive and negative attitudes expressed by the family, their social network, and media have all played roles in how these children have come to appreciate their heritage language.

In another qualitative study of Chinese-speaking families in the United States, Zhang and Slaughter-Defoe (2009) suggested that these families generally have a favorable attitude towards the heritage language. The favorable attitude helps to preserve the language usage in the family and encourage bilingualism in their children. Nonetheless, this ethnographic study demonstrated an interesting contrast between two different Chinese-speaking communities. The participants included 18 families from two different communities in Philadelphia. One community is made up of highly educated professionals and academics, all native Mandarin speakers. The other community was made up of less educated workers who natively speak Fujianese, a minority language in China. The data was collected from participant observation and interviews.

The data was coded to conduct a thematic analysis in which the language of the speaker conceptualized the heritage language into categories, including "language as a problem", "language as a right", and "language as a resource". The Mandarin speakers mostly considered Mandarin to be a valued resource. Moreover, the Fujianese speakers also considered Mandarin to be a resource, while viewing their own L1 (Fujianese) to be unimportant to their children's future. Both communities encouraged the use of Mandarin and considered it an important aspect of their Chinese identity. Although the parents considered Mandarin as a highly valued symbol of their heritage, the children were insistent that learning Chinese was unimportant, due mainly to the fact that they were socializing in English and using English in school. Nevertheless, the children did express some level of appreciation and pride in their heritage language.

Based on the findings, Zhang and Slaughter-Defoe (2009) claimed that the burden of promoting the heritage language should not be squarely on the shoulders of the

parents, suggesting that the community and the public should become more involved with the heritage language to help promote the value of bilingualism and heritage language maintenance. This study was limited in scope based on the sample size, yet it was still able to uncover realizations that remain obstacles to heritage language maintenance. The parents engaged in code-switching behavior, and one of the children made reference to code-switching with another child who was in the process of abandoning the heritage language. However the participants made no direct statement about the fact that code-switching likely occurs in the home and community or how this process may be connected to heritage language loss or maintenance.

In looking at a similar survey of Eastern European immigrants living in the United States (Nesteruk, 2010), most participants stated that transmitting the heritage language to their children was very important. The study involved 24 parents who had immigrated to the Southern region of the United States and 26 participants from other regions of the United States. These participants were interviewed to collect narratives about their life in the United States. The participants claimed that knowing the heritage language provided an array of benefits, such as encouraging multilingualism, cognitive development, and a better understanding of the world and its diverse cultures. One parent responded, “The more languages you speak, the smarter you are,” which seemed to be the prevailing sentiment expressed by the survey respondents. Nonetheless, not all of the participants claimed to be successful at transmitting the heritage language due to personal limitations, such as free time to teach the child and peer pressure to assimilate to the English-dominant environment. Nesteruk (2010) noted that transmission seemed to move in “cycles” in which the younger children with stay-at-home mothers were more

successful at maintaining the heritage language than older children or children with working parents. This observation in child-parent relations may imply greater emphasis on the role of community, which will be discussed in the section below. One major issue with the study, however, was the lack of statistical analysis to provide detailed information with these opinions. While gathering the perceptions of these participants is valuable, it is unclear whether these opinions are shared—particularly in relation to other influencing factors, as the current study proposes.

Furthermore, in an examination of heritage language transmission, Turjoman (2013) surveyed 473 Arab immigrant families in the American Midwest to examine attitudes and practices related to heritage language maintenance. The participants were given a multiple-choice questionnaire, and the responses were described and explored using Chi-squared analysis. While 91% of the respondents agreed that learning the Arabic language was important for the children, only 61.3% of the respondents actively taught the heritage language to their children. Of those parents who taught Arabic to their children, only 16 respondents (5.5% of those who taught Arabic to their children) stated that they used Arabic as the language of instruction while 145 respondents (49.8% of the same subset) used both Arabic and English to instruct the child. Furthermore, one respondent commented that she did not want her children to speak Arabic in public due to fears of racism in America, a sentiment expressed in the previous research studies described here. Turjoman (2013) also noted that those who were teaching the heritage language were significantly more likely to be recent immigrants who were still strongly connected to the culture. However, this trend waned over time, and those who had lengthier residences in the United States were less likely to be teaching Arabic to their

children. Significant differences were also noted in the mother's age and level of education. Younger mothers were more likely to teach their children, and mothers with more education were less likely to teach their children. While both languages were a part of the families' environments (i.e., teaching Arabic in English) in this study, code-switching was not investigated.

2.3.3 Summary of research on language attitude. Language attitude promotes positive motivations for maintaining a heritage language; however, an underlying current that has been revealed is that the attitudes displayed by the actions of a community may provide a clearer picture than one we might envision listening to how one speaks of their heritage. Not only does it seem that parents need to provide verbal encouragement to the heritage language, but more importantly, it would seem that the parents who wish to promote the heritage language need to actively create an environment in which the language is seen as valuable and useful. Moreover, an environment in which the home is the center of heritage language usage may not be enough to stem the tide of peer pressure to abandon the heritage language in favor of the dominant one that could offer more economic value for the child's future.

2.4 Resources

2.4.1 Definition of resources. The concept of resources has not been clearly defined in previous literature. This factor could be defined to include very specific assets or very broad concepts. For this study, resources will be defined as economic advantages, accessible educational, technology, and materials for learning.

A great deal of educational research is dedicated to the investigation of the efficacy of practices and material development. Thus, it would seem that access to

educational resources and best practices would improve one's ability to learn. Roscogni and Ainsworth-Darnell (1999) noted that:

> Family background is consequential, in part, because of its influence on educational access across and within schools. That is, family SES [Socioeconomic Status] and structure have implications for the type and quality of school a student attends….Equally, if not more, important is the influence of family background on resources that parents can provide to their children.

Immigrant and minority language cultures are not immune to the influence of socioeconomic factors. As introduced in the paragraphs below, socioeconomic differences between heritage language groups reveal disparities and differences in perspective. This current study will focus on educational resources, particularly educational facilities, community programs, and materials developed for the teaching of heritage languages. The parental capabilities to educate their children, or at least to be educated individuals with strong linguistic repertoires, will also be addressed.

Any discussion of languages and resources would be lacking if there were no mention of Bourdieu's (1977, 1986) concept of cultural capital, which Roscogni and Ainsworth-Darnell (1999) once applied as a framework to discuss racial inequality in black communities. Cultural capital can be defined as the artifacts of a culture and its values, which may be used to help an individual advance socially within that culture (Bourdieu, 1986). Heritage language learners are those who take advantage of the cultural capital that the heritage language offers. The following sections note the research conducted on community educational programs, which not every individual has access to, as well as how families and communities provide access heritage language learners to valuable resources.

2.4.2 Research on community programs for heritage language learning. In a policy recommendation, Ngai (2002) proposed that communities benefit from inclusive bilingual programs. First and foremost, the children can benefit from multicultural and multilingual settings. The heritage language learners may benefit from the interaction and the potentially positive attitudes of believing that the language is valued. The society may benefit from the skills that it provides to its youth, which may be used in future business and political relations. Ngai notes that there are limitations, which can be addressed when establishing such programs. With foresight, small towns may be able to host programs that already have established minority language communities. The establishment of an inclusive bilingual program provides a potentially powerful resource for heritage language maintenance, and even language revitalization. While not noted in the proposal, such a program would also raise the cultural capital of the heritage language.

Lee and Wright (2014) provides a detailed account of heritage language and community language programs in the United States and note how these programs have been "rediscovered" in recent years. The first section of their research provides examples of how modern Korean and Khmer language programs exemplify the current situation and offer resources to heritage language learners. The Korean heritage language programs have provided services to large numbers of learners and have benefitted from support from both the South Korean government and major corporations based in South Korea. Many of these programs have become formalized and professionalized, in part, due to the professional, upper class positioning of many Korean-Americans. In comparison, the Khmer language programs are mostly supported by local communities of Cambodian immigrants who were mostly refugees with few resources when arriving in

the U. S. Thus the Khmer programs struggle to provide a quality of education comparable to the Korean programs. The study called for action for supporting more programs and aiding in improving services, particularly among those minority cultures that may be lacking in resources to support heritage language programs.

Doerr and Lee (2009) investigated options for Japanese heritage language learners studying in the United States. The authors explain the differences in Japanese-funded programs for children living abroad: the *hoshuko/kokugo* system of supplementary education for native level Japanese skills and the *keishogo* system for heritage language learners. The *kokugo* instruction focuses on language and literature and is taught in Japanese; the *keishogo* instruction focus on language instruction and is taught in English. The development of the *keishogo* system stemmed from the fact that "those who have less than 'native' competency are often marginalized, and sometimes shy away from using/learning the language around 'native speakers' of the language". The school researched in the study had developed a hybrid course to offer *keishogo* instruction taught in the Japanese language, and the focus of the study revolves around the choices made to enroll or not to enroll in the course. Students and their parents were interviewed in the multiple case studies. The first case involved a trilingual Malaysian-Japanese student born in the United States; her father found the level of instruction more suitable for his daughter's needs. The second student was a Japanese-Russian who spoke English and Japanese. She was enrolled in the hybrid course due to noticeable changes in her ability to participate in the classroom in a more engaged manner. The third student was a Japanese-American whose family was actively bilingual. She choose to stay in the traditional *hoshuko* classes because she wished to experience the authenticity and rigor of

traditional Japanese language learning. The fourth student was a Japanese-American boy who did not have the requisite preparation to learn grade-level content. Thus the hybrid course offered an alternative that better suited his abilities. Overall, while the hybrid course was often "perceived as a class for dropouts", many of the participants mentioned changing opinions and finding the course to be an acceptable medium between the two commonly offered systems. Offering such alternatives as the hybrid course provides heritage language instruction that may offer more than merely language instruction but also an environment for greater interaction.

Another study on heritage language education investigated a Hawaiian immersion program (Luning & Yamauchi, 2010). The purpose of the study was to examine attitudes and identity after experiencing the immersion program. Interviews were conducted with seventeen students and parents. Transcripts of the interviews were coded by two different raters based on themes with 84% agreement. The main themes focused on language, cultural identity, and views on family and community. The themes on language seemed to express positive experiences with being able to be bilingual and use Hawaiian outside of the classroom; however, some noted that English was still the preferred language. When discussing culture, a common subtheme was having a greater appreciation for the traditional spiritual beliefs and traditional values, which included the concept "that perpetuation of Hawaiian language and culture was an obligation that should be shared by the entire community". Interestingly, the authors noted that "[f]amilies who decided to enroll their children in the program often faced criticism" due to the importance of needing to learn English. The authors concluded that by having learned to become adept

bilinguals, the children showed their community that revitalization and heritage language maintenance were viable choices.

Another research article on heritage language teaching in the home and the community also argues for the need to help lesser-known languages thrive. Li and Wen (2015) investigated the struggles of lesser-known languages, such as Hmong, Burmese, and Mongolian. The study reviewed the existing literature related to East Asian languages, noting that a large majority of the research deals with Chinese, Japanese and Korean—likely due to the convenience of immigrant population sizes. The study examines home teaching and community programs, their struggles with maintaining the heritage language, and the positive possibilities that exist in the future if such communities are supported. Most notably among the struggles is the desire to fit into American society by abandoning aspects of heritage language and culture. While community schools and programs have been vital to heritage language efforts, the study discovered that the efficacy of such programs has been shown to be lacking. Reasons for this lack in quality may be due to the short amount of time allocated to instruction, motivational issues among the students, and lack of instructors with pedagogical training. Nonetheless, according to the study, programs are beginning to show improvement due to the efforts of those who do have a background in education. The study also argues that opportunities exist for formal education, in part, due to growth in world languages programs and language immersion schools.

The resources offered by community and formal educational programs have been highlighted in a great deal of research (some of which have been and will be noted in other sections of this literature review). Nonetheless, educational programs offer a great

deal in the way of resources; for example, there are books, materials, and expert instructors, all of which may provide an atmosphere of encouragement, practice, and guidance. While not all programs are created equally, they all could be beneficial to those wishing to deepen their understanding of the heritage language and culture.

2.4.3 Research on other family and community resources. Resources are not limited to educational programs provided. The socio-economic status of a family and the opportunity to develop and access cultural and/or monetary capital may play a major role as well. If factors related to access of resources prove to be great, then those families that struggle with income may be at a grave disadvantage.

One way that parents have encouraged heritage language learning is by developing a social network. An ethnographic study compared suburban and urban groups of Chinese immigrants in Philadelphia (Zhang, D. 2012), which was a part of the same study as Zhang and Slaughter-Defoe (2009). The suburban Chinese were mostly connected with a local university or were highly educated professionals; the urban Chinese had very limited education and worked for local small business. It should also be noted that the urban Chinese were largely identified as coming from the Min culture, which speak a dialect of Chinese as well as the national Mandarin dialect. The suburban Chinese considered languages (both L1 and L2) to be ties that helped connect themselves to a variety of networks. The urban Chinese mostly avoided passing on their home dialect in favor of Mandarin but at the same time did not reach out to the suburban Chinese, showing cultural conceptions of class separation. The suburban children were enrolled in weekend classes to help encourage growth in their heritage language abilities, but they were also subjected to the stress of assimilation due to their experiences with

socialization and their parents' desire for the child to do well in their more formal English schooling. Moreover, the children resisted Mandarin due to the fact that they knew that their parents were proficient in English. Zhang notes that the children used minimal amounts of the heritage language, creating a strain on the parent-child relationship. On the other hand, the urban children were less likely to socialize outside of their Chinatown network of friends. The author notes that this result is partially due to challenges stemming from stigmatization of the status being a working-class immigrant family.

Moreover, Law (2015) researched the issues surrounding the loss of language, particularly among Chinese immigrants. The author cites that 91.4% of third-generation Chinese-Americans have become monolingual English speakers. Law states, "It is only Chinese that stands in stark contrast to the rest" (p. 736), noting that other heritage culture backgrounds are more likely to be bilingual. The author notes the benefits of bilingualism and heritage language maintenance, including educational, social, emotional, and economical benefits. According to the study, the access to resources is limited, and parents need assistance in accessing pedagogical information to make learning the heritage language in the home more meaningful. Connections between the family, educators, and the children need to be developed so that families better understand the value of bilingualism and are able to foster motivation in their children.

Family-support, which is also a sign of positive language attitudes, provides the heritage learner with resources and an environment in which to learn the heritage language. Mu and Dooley (2015) investigated ways in which family support correlated to heritage language proficiency. A total of 230 Chinese-Australian participants completed an online survey. The participants' language proficiency was self-reported along with

questions about family support (use of language at home, enrollment into community language classes, etc.) and demographic information (age, age of arrival, generation, etc.). The responses underwent regression analysis, and it was noted that perceived family support and home language policy were the most significant predictors for heritage language proficiency. The survey was supplemented with semi-structured interviews conducted on five participants. Included in the framework of this study was the Bourdieusian (1977) concept of cultural capital—an analogous form of social currency, in which cultural capabilities provide opportunities. In particular, the study suggests that Australian educational policies have been targeting speakers of Mandarin to encourage multicultural and economic growth. Therefore, family support and the national policies aid in increasing the motivations of heritage language learners. One revelation from the responses was that while informal family support helped develop habits of language usage, the formal supports were met with some resistance from the heritage language learners.

In an examination of the heritage language as a resource in and of itself, a study was conducted examining the vocabulary used in Turkish families (Willard, Agache, Jäkel, Glück, & Leyendecker, 2015). The study focused on the educational attainment, language use and literacy in the home. The participants included 119 preschoolers, 121 fourth graders, and the mothers of all of the children. The Peabody Picture Vocabulary Test, Fourth Edition, was used to assess linguistic abilities of the heritage language. The mothers were interviewed and given a questionnaire to complete, and bivariate correlation tests were conducted on the responses. The mother's use of Turkish in the home was a significant predictor for a stronger Turkish vocabulary for both the

preschoolers and fourth graders. Second generation mothers were found to be a predictor for weaker Turkish vocabulary for both age groups because there was less likelihood of speaking Turkish amongst that generation. Home literacy was also a significant predictor for the preschoolers. A subsample of results also included the father's educational attainment, which was found to have a minor effect on the Turkish vocabulary.

With greater and greater access to technology, Computer Mediated Communication (CMC) is another resource that may be valuable in promoting heritage languages usage. Meskill and Anthony (2008) examined the use of CMC by Russian heritage language learners. The study investigated an adaptation developed for a Russian course designed for heritage language learners. The heritage language learners were required to participate in CMC classrooms, and in reflections on their practice, the students commented on improvements, particularly in vocabulary and spelling. Since the online interaction was mostly conducted in discussion texts, improved language abilities seems natural. This environment places the need to negotiate meaning in a written form. Another point of reflection was the construction of identity and developing attitudes toward the target language. The interaction between the L2 learners and the heritage language learners provided for engaging discussion as each group had knowledge that the other group sought (e.g., interest in Russian Culture or American Culture). Furthermore, the study noted that the students seemed to develop a community that "paid more attention to the linguistic forms in their classmates' postings than to those in their instructor's postings." This environment created a real-world situation for communication in the target language by those seeking to improve their abilities. In the end, the authors concluded that the CMC interaction was "one tool of many" for language learning.

2.4.4 Summary of research related to heritage language resources. Research related resources for heritage language learning branches into two main areas: educational programs (usually community programs) and socio-economic access to resources. Educational programs are likely to vary based on the language in question and support that is proved to the program. On the one hand, larger majority cultures are likely to have the greatest access to opportunities based mainly on demand for the programs and support offered in a larger community. On the other hand, lesser-known languages are more greatly disadvantaged simply due to less demand. Nonetheless, these lesser-known languages have as much a right to heritage language learning opportunities as larger communities do. Socio-economic access on the family level may vary even more greatly. Wealthy families are going to be able to provide more materials for their children and be able to afford travel to countries that speak the heritage language to provide the necessary environments for children to practice heritage language skills. Also, the pull of the dominant language and its promises of a better education and better jobs attract children in heritage language families and discourages heritage language maintenance.

2.5 Interaction

2.5.1 Definition of Interaction. Language and interaction are intrinsically entwined concepts. Interaction has been defined as "the conversations that learners participate in" (Gass & Mackey, 2015). When a child speaks with a parent or when peers engage in conversation, interaction is taking place. Each interaction is an occasion to learn new vocabulary words, to express ideas and beliefs, and to shape one's own identity in relation to others. The interaction may occur in the heritage language, the dominant language, or in the form of code-switching. Researchers have noticed that code-switching

does not occur in isolation; however, the types of interactions and the possible options for interaction may play a role in such linguistic choices that develop in situations where the heritage language and the dominant language become tightly integrated into child's social experiences.

2.5.2. Research on interactions that promote heritage language learning. The three articles presented here discuss situations in which interaction and involvement promote use and understanding of the heritage language. First, as discussed in the section devoted to resources, internet technology provides heritage language users opportunities as meaningful interactions. Texting, chatting, tweeting, and blogging are all forms of written interaction that may give individuals an opportunity to personally develop a community that can make its own language choices. Yi (2008) investigated how adolescents used text-based communication to interact and what the language choices in communication revealed. This case study investigated the practices of two Korean immigrant children living in the Midwestern United States. Both children were high school students who were highly proficient in English and Korean. Both students had strong relationships with other Korean-American students as well as local American students. The study collected data through oral conversations (formal and informal), observations, and writing samples over a six-month span. The results indicated that two purposes for using the heritage language were to interact with other Korean speakers and to stay in contact with others living in Korea. Yi concluded that the students viewed their online interactions to be "voluntary, enjoyable, and purposeful; importantly, it helped them develop a great sense of fluency and confidence in and motivation for writing in [the heritage language]." Moreover, the online interactions involved the use of English,

Korean, and code-switched communications. The author claimed that online communication could play a positive role in encouraging adolescents to become more active users of the language. The joy of being a part of an online community could also provide greater intrinsic motivation to become invested in the heritage language and culture. Nonetheless, these participants were already considered to be highly motivated individuals before the study was conducted. Therefore, a greater understanding of how to develop intrinsic motivation needs to be investigated further.

Second, heritage language use in the family would seem to provide obvious opportunities for meaningful and valuable interactions, although it may be that not all interactions equally promote learning. One study of Korean heritage language speakers found that family interactions to be valuable to literacy skills (Kim & Pyun, 2014). The researchers conducted a quantitative analysis to examine what factors worked as predictors for heritage language literacy. To this end, a total of fifty-six bilingual heritage language learners, aged 10-24, completed a survey and writing tasks in Korean and English. The writing tasks were judged by separate raters with significantly consistent inter-rater reliability. One-way ANOVA results revealed that English writing scores improved significantly with age (i.e., Elementary, Middle School, High School, and College); however, Korean literacy did not improve over a general time correlation. Rather, a significant correlation was noted between Korean language practice and their Korean writing scores. The authors proposed, “This can be taken to imply that conversational HL use with family at home exerts a certain degree of influence over literacy development…”. Moreover, negative correlations were found between home use of English and their Korean writing scores. It should also be noted that the authors placed

emphasis on “focused Korean language practice” which is not necessarily associated with home practices.

Finally, some interactions, such as observing local customs, may be highly specific and still promote heritage language maintenance; albeit, these interactions may not promote practical everyday usage. For example, Chiang (2014) describes how heritage languages have been maintained through ritualized practices in Singapore. While Singapore is a multilingual country, English holds a dominant position in the economic and political spheres. The author conducted case studies on four Cantonese heritage language families. Of these cases, two families were able to adapt ritualistic traditions to work alongside modernized religious beliefs, which helped encourage gathering for rituals and helped maintain the heritage language. However, in the other cases, the rituals have been modernized to fit with the new belief systems and the language of those belief systems, which has slowly caused these families to begin abandoning the heritage language. These situations in which meaningful interaction occurs play a role in whether or not the heritage language will likely be maintained.

2.5.3. Interaction and code-switching behavior. In some communities, groups, or families, code-switching behaviors occur if there is shared bilingualism. The following studies discuss such behavior among heritage language learners. In one study that focused on the code-switching of Punjabi-English bilinguals in Britain, the relationship with the interlocutor was noted as a key factor (Moffatt & Milroy, 1992). Ten children were audio recorded during school activities and playtime, and participant observation was also used to collect data. The authors also recorded patterns of code-switching that were used in the children’s interactions. One pattern focused around intersentential

switches that often involved a single lexical item. A second pattern focused on conversational turns. This pattern included switching interlocutors, rhetorical emphasis, and gaining and keeping attention. Around 29% of the utterances were classified as "other". The third type of switch did not focus on conversational turns and represented accommodation strategies. The authors also noted that linguistic proficiency may have played a role in some participant's code-switching patterns, particularly among children who were less in their heritage language.

According to Mishina (1999), parental interaction relates to child code-switching. The focus of the study dealt with strategies used when responding to the child's language. The participants included a child who was an English/Japanese bilingual and the child's parents. The child's age during the study ranged from 22 months to 26 months. Audio recordings were made once per month for two hours each during this time period. Utterances were classified based on speaker, listener, and language(s). The results revealed that the parents used much less code-switching than the child. The rates of code-switching were 4.5% and 0.8% for the mother and father respectively. The child's average rate of code-switching was 29.8% and 7.7% with interacting with the mother and father respectively. These results revealed significant differences in parent-child interactions between the mother and father. An examination of discourse strategies revealed that the mother used more bilingual (code-switching) strategies while the father used a balance of monolingual and bilingual strategies. While this study provides quantitative data surrounding parent-child interaction, limitations in the number of participants, age of the child, and the child's overall linguistic abilities need to be

considered because they prevent generalizability. A more in-depth discussion on the child-parent interaction will be provided in the next section.

Accommodation strategies as an impetus for code-switching were further studied in the speech of multigenerational Taiwanese living in Taiwan (Sandel, Chao, & Liang, 2006). The study participants included 58 parents of children enrolled in grades 1-3, all of whom had learned how to teach their heritage language (Hakka or Tai-gi). The participants were interviewed using a semi-structured model and also completed a questionnaire related to family and child speech practices. The research questions focused on whether location (rural v. urban) and households (nuclear v. extended) correlated with more usage of Mandarin or the heritage language. Repeated measures ANOVA tests were used to compare the questionnaire responses. The overall shift to Mandarin for both parents and children was shown to be significant. Location also revealed a significant correlation. Independent *t*-tests revealed between-subject effects for parent-to-child interactions by location. Parents were using more Mandarin or heritage language depending on if they resided in an urban or rural location, respectively. Moreover, child-to-other interactions correlated by location, while household type only correlated in child-to-elder interactions and child-to-child interactions. The authors proposed four possible theories to explain the results. Generational effects, ethnolinguistic vitality, language ideology, and communication accommodation theory were all discussed as possible influences of what had been revealed in the data.

2.5.4. Summary of research on interaction. The studies that examined the role of interaction reveal that when families or communities engage in the usage of a heritage language, a variety of situations arise. First and foremost, families should be focused on

explicitly teaching the language (or having the child taught in an educational program) if they wish to promote the heritage language. Interactions that the heritage language learner undertakes will help with aspects of attitude, and meaningful or ritualized practices will help maintain the heritage language; however, these interactions will not necessarily be enough to promote growth.

2.6. Modeling

2.6.1 Definition of modeling. Modeling in relation to bilingual parental interaction has been defined as "one type of parental speech act that encourages young bilingual children" by Comeau, Genesee, and Lapaquette (2003). Their hypothesis, discussed below, was a response to "the rule of Grammont", which provided the one-parent/one-language policy. Evidence from a number of articles reviewed in this chapter demonstrates that the policy has not proven to be effective. While some research might point out the effect of peer groups on language preference (such as Zhang, D. 2012 discussed above), choices in how parents speak to their children might also play a role in the language learning of young children. For a family where the parents speak differing first languages, it may be that parent-to-parent interaction might contain code-switching or code-switching might be used incidentally, and these instances may provide modeling for the child by showing acceptability of code-switching as a communication strategy or as an aspect of identity held within the family itself.

In the study that defined modeling for code-switching, Comeau, Genesee, and Lapaquette (2003) proposed the Modeling Hypothesis to explain the phenomenon of code-switching in bilingual children. The authors stated:

> [The Modeling Hypothesis] makes an interesting and testable assumption about the language processing capacity of young bilingual children;

> namely, that they are sensitive to the rates of [code-switching] in the input and can model their output in accordance with the input on-line. (Comeau, Genesee, & Laoaquette, 2003, pg. 114)

The study recorded six French/English children during their second year. Each child was recorded with the parents for approximately 30 minutes for each of five sessions. Each session varied in rates at which the interviewer switched codes. The mean length of utterances (MLU), a common measure of speech, of the child's speech were calculated both with (and without) the bound morphemes. Word types, tokens, and multiword utterances were also calculated in the study. Significant results were noted in the change of code-switching by most of the children between sessions in which code-switching was modeled. According to the analysis, it seems that the children adjusted their own rates of code-switching to match the interlocutor.

2.6.2. Follow-up research on modeling. The 2003 Comeau, Genesee, and Lapaquette study has fueled further research related to the modeling hypothesis, although the results are conflicting. Mishina-Mori (2011) studied two Japanese-English bilingual children from different families. They were observed and recorded once a month over the span of 11 months for the boy and 10 months for the girl. Each family was attempting to follow a strict one-parent/one-language approach to communication with their child. Number of utterances, MLUs, and number of word types were calculated for each child. Total utterances, mixed and non-mixed utterances were also calculated for the parents' interactions with their child. The mixed utterances were further split into intrasentential and intersentential types. For the boy, the mother's rate of code-switching was 2.1% while the child's rate with the mother was 48.9%. The father's rate of code-switching was 0.1% while the child's rate of code-switching with the father was 0.5%. For the girl, the

mother's rate of code-switching was 0.3% while the child's rate with the mother was 0.9%. The father's rate of code-switching was 0.3% while the child's rate of code-switching with the father was 3.3%. Mishina-Mori concluded that these results were in line with the Modeling Hypothesis (Comeau, Genesee, & Laoaquette, 2003). However, the author claimed, "the Modeling Hypothesis is not strongly supported in real-life parent–child interactions. In other words, the one parent-one language policy alone, even if it is strictly followed, does not promise strict separation of the two languages based on the interlocutor." Although, to examine the results more closely, one can see that the child's switching patterns were consistent with the parent of shared gender; however, Mishina-Mori does not make this claim.

In a similar study, Meng and Miyamoto (2012) conducted an experiment with a three-year-old Chinese/Japanese bilingual child. The researchers gathered over 128 hours of parent-child interaction over the span of a year. According to their analysis, the parental tokens of code-switching decreased from a 15% high in the third month to a 2% rate in the final month. The average rate over the year was 3%; the lowest rates were 0% in the sixth and eighth months. The child's rate of code-switching actually increased. The first month was the lowest with an 18% rate of code-switching. The highest rate of code-switching occurred during the seventh month with a 54% rate. The final month recorded a 34% rate of code-switching, with an average of 30% over the span of the research. Therefore, it did not seem that the child was accommodating to the parental rate of code-switching as might have been hypothesized.

Khierkhah and Cekaite (2015) studied a family living in a trilingual situation. The family in question was of Iranian origin, living in Sweden. The mother's heritage

language was Persian; the father's heritage language was Kurdish. The family had chosen to implement a one-parent/one-language policy in order to maintain the heritage languages for their children, ages 7 and 11. The children and their peers would usually interact in Swedish. The study analyzed data collected from video recordings of "everyday family interactions (mealtimes and sibling play; approximately five hours of video-recordings from each)". Observations, ethnographic research, and interviews were also conducted. The children were often asked to translate words that were in languages other than that of the parent's native language. The older child was fairly confident in her abilities to speak the heritage languages as requested by her parents.

However, while rules for monolingual interactions were laid out, the younger daughter was more resistant. The authors noted that her "non-forthcoming 'translation' moves, such as when the girl claims that she does not know how to translate a specific word, also entailed her self-definition as someone who does not understand, speak, or wish to learn the language in question, and as someone who does not wish to participate in the informal instructional exchanges". The parents were noted as being very "formal" in their approach, much like would be expected of language teachers. Although these interactions were appreciated as being strong strategies for heritage language dissemination, the translation approach was seen as "threatening" to the child's bilingualism because this approach relegates the child's intent at communication as secondary and places the child's linguistic choice as being of lesser value. Interestingly, the authors make note in the conclusion that while this study focused on family interactions, heritage language maintenance is a multi-faceted field that depends upon not simply the family, but also society and the concept of identity.

2.6.3. Summary of modeling in language research. The recent research on how children may be learning code-switching behavior in homes that attempt to promote the heritage language seems a compelling avenue for further research; thus, it is included here. As noted previously, children experience pressures inside and outside of the home to adapt to a dominant language situation when they are heritage language speakers. Therefore, code-switching behavior might help the child bridge the gap between cultures and provide a place to cultivate one's own identity as a member of the heritage language community and the dominant language community. However, views on such linguistic choices have been shown to receive negative attention from elders within the heritage language community.

2.7 Studies examining multiple factors

A number of studies dealt with more than one factor in their research questions and analysis. Identity was commonly associated with attitude or education. Social interaction was also commonly a factor involved in examinations of resources available to the participants. Following are the articles that do not fit well under one particular heading due to the methodology, theoretical underpinning, or analysis results. In an early study on the significance of code-switching, identity and language education, Treffers-Daller (1992) claimed that a trend in less code-switching by adolescents in Belgium was emblematic of their defined identity as either Dutch or French. The study focused on the Anderlecht municipality of Brussels as compared to individuals in the central municipality. These regions were selected because of their differing trends in language usage. The central municipality was predominantly French while Anderlecht was predominantly Dutch. Thirty-four participants, in total, were selected for the study via

social networks sharing. The participants were orally questioned to identify Dutch and French idiomatic expressions. Then they were given a questionnaire, which included questions on background information, social network sharing, and language attitudes and opinions. Code-switching data was collected during the oral discussion, and the calculations were normalized by calculating average mean lengths of utterances and dividing by total length of the scenario to provide equal representation in the analysis. The corpus was predominantly Brussels Dutch (150,000 words as compared to 40,000 word in Brussels French.) "Local background" was a significant factor in the results; those from the central municipality were more likely to code-switch. Another significant factor was educational background; those with Dutch education were less likely to code-switch. Interestingly, negative attitudes towards code-switching correlated significantly and positively with intrasentential code-switching. According to the study, code-switching seems to have fallen out of favor among the youth of Brussels due to educational factors and puristic attitudes that were particularly strong in those regions.

One of the most extensive surveys conducted in heritage language research was Lao's (2004) study of language attitude. While attitude may be the focus of the study, the inquiry into resources is also very valuable data. Lao surveyed 86 families in San Francisco whose children were enrolled in Chinese-English preschool programs. The majority of participants (81.6% of the Chinese L1 parents and 70.6% of the English L1 parents) agreed that the child's L1 is as valuable as the dominant language and that the child does not need to sacrifice their L1 to increase their L2 proficiency. Approximately 64% of the respondents on both sides felt that the L1 and L2 should include the L1 in part of the teaching. Moreover, a majority of respondents believed that having access to two

languages could enhance career prospects in the future. However, only 55.9% of the English-dominant parents and 48.1% of the Chinese-dominant parents believed that bilingualism could enhance cognitive development. It should also be noted that a majority of the English-dominant parents (61.3%) preferred a monolingual environment in the home while only 28.8% of the Chinese-dominant parents held similar beliefs in relation to the heritage language. Therefore it seems that the Chinese-dominant families are attempting to integrate with the English-dominant community while the English dominant families are encouraging their children to appreciate the local diversity.

In terms of access to resources, around 18% of the respondents had no Chinese books in the home. Around 3% of the families had more than 80 Chinese books. The median number of Chinese books in the home ranged from 1-20. On the other hand, only around 2% of the respondents had no English books in the home. In contrast, 44.1% of the English-dominant families and 21.2% of the Chinese-dominant families had more than 80 English books. The medians were between 61-80 English books for the English-dominant families and between 21-40 English books for the Chinese dominant families. No further analysis was conducted on these statistics, and it should be considered that since the families were living in the U. S., the access to Chinese books were likely to be limited. However, this inequality to home access of written materials might have an effect on how the language is used and perceived in the home. Moreover, the English-dominant parents did not read Chinese texts for pleasure (100% read only English for pleasure), while more than 25% of the Chinese-dominant parents read only English, only Chinese, or a mix of the languages for pleasure.

Borland (2005) examined the influence of community interaction and the process of identity building. Her qualitative study focused on Maltese-speaking communities in Australia. Built upon previous literature related to the concepts of community (i.e., Fishman, 1989) and social networks (i.e., Milroy, 1987; Stoessel, 2002), Borland claims that community identity building may be an important environment for heritage language maintenance. One key aspect of this environment is the educational opportunity for learning and using the heritage language in the community. Due to the Maltese status as a language with less prestige, education is hindered. Borland's study examined data from interviews and documentation for previous local studies in the Australian Maltese community. The research uncovered a very low rate of learning and usage among Maltese children living in Australia. Also, as commonly reported, the children preferred using the dominant language, English, over their heritage language.

Correlations from the previous study of the community (Carr and Kemmis, 1986, as sited in Borland 2005) revealed that identity seemed to play the most important role helping develop the heritage language. Borland noted that this information was used to help create an opportune environment. The community building process seemed to be successful due to setting up a meeting between the youth and those researchers and educators interesting in preserving the heritage culture. One major failing that was noted was the lack of support from the community's formal education system. Finally, Borland reported a movement by the Maltese government to offer support for cultural endeavors in Maltese language communities. While Carr and Kemmis (1986) note that "reversing language shift for groups like the Maltese in Australia do not look strong", she expressed

a positive outlook due to the potential noted in the community interaction and the identity growth that has resulted from these events.

In a more recent study (Nomura & Caidi, 2013), the practices of Japanese families living in Canada were examined to see how heritage language maintenance may be effectively conducted and how community outreach from the library may provide assistance. Fourteen mothers were interviewed in order to discuss topics related to literacy, attitude, identity and the resources used in attempting to maintain the Japanese language with their children. Most of the participants emphasized the familial connections to Japan as impetus for wishing to acculturate their children and encourage learning about the heritage language and culture. The authors also pointed out that over one-third of the participants, those whose husbands were also Japanese, felt that disseminating their heritage culture to their children was required and not a choice; at the same time, the rest of the participants, those who had married outside of the Japanese culture, seemed to wrestle with the choice as to whether dissemination of the heritage culture was valuable to their children. Some of those mothers who had intermarried brought up issues related to the benefits of being multilingual. Among resources for encouraging or teaching the Japanese language, all of the participants found books (particularly picture books) to be the best resource.

A majority of the mothers also used videos, whether found online or on DVDs to play on the television. Educational resource subscription services were used by 28% of the participants, and a smaller minority (21%) also incorporated smartphone/tablet applications. Other methods of exposing children to the heritage language/culture included: online communications with family members, play dates with the children of

other Japanese families, singing Japanese songs, and creating teachable moments with their children when reading in real-world situations. Some mothers felt that cold media (such as video, which involves passivity) were ineffective because the child was not actively engaged with the media content. In a discussion on local (Toronto) library resources, the mothers seemed to indicate a lack of knowledge about the state of the library because they complained about the "small size" of the collection (of 480 children's books) and about the catalog system and their inabilities to navigate it.

Also noted in this section, some mothers discussed issues related to code-switching. One mother expressed worries about myths related to bilingualism, and another provided an interesting quote: "One of his favorite words was an airplane, but he does not say the word in Japanese anymore. Once he learned the word in English…if I say, "Look, that's an airplane" in Japanese, he says, "No, airplane!" in English. I feel samishii [left out]." Notice that the mother herself switches from English in the response to Japanese at the end. Alongside interviews, thirteen of the mothers helped to develop picture diaries. The findings revealed that the mothers seemed to see the library as a place for the family to spend time together as opposed to being a place for the community to gather as a whole.

2.8 Summary of Literature Review

Research related to heritage language learning has provided some insight into how families and communities work together for the purpose of maintaining the heritage language. From this insight, we can see that five factors are intertwined in developing the language skills and knowledge of the next generation. Identity is an internalized factor in which feeling one is a part of the heritage culture encourages appreciation and a desire

for heritage language maintenance. Attitude is a linguistic and behavioral symbol of one's level of appreciation. On the one hand, it may be that attitude does not necessarily provide the motivation for heritage language maintenance; on the other hand, cultivating a positive attitude may be a stepping-stone to encourage more youth to learn more about their heritage. Access to resources may be a subtly important factor in heritage language maintenance. Such a correlation may provide the impetus for encouraging more people to participate in materials development and charitable giving for the purpose of maintaining heritage languages—particular among endangered language communities. The concept of interaction follows the conventional "use it or lose it" mentality commonly associated with language learning in general. However, research on heritage language learners has shown that these learners represent a transformational stage, in which code-switching appears among the youth who are attempting to balance their bilingual abilities. Moreover, research on how parents model languages with their children reveals that code-switching might be incidentally encouraged. In the end, we see bilingualism, particularly among heritage language learners, is a complex trait with many possible factors working for and against the encouragement of full bilingual development.

Chapter 3 Methodology

3.1. Research Questions

As discussed in previous chapters, five common factors have been identified as being instrumental in the maintenance of heritage languages. Therefore, parents likely promote these factors in a variety of ways. Up to this point, research on heritage language maintenance in the family has focused on an isolated factor that has been uncovered in that particular study, most of which have been qualitative studies. Noting the separateness of these factors in the research of previous literature, the purpose of the current study is to combine all of these factors into a single design. In doing so, the following questions will be asked:

1. To what extent does each of these factors relate to heritage language maintenance?
2. Which factors differ between children who are more capable in their heritage language and those children who are not?
3. Which factors do parents more commonly promote?

This study does not hypothesize that one factor will be dominant. The design of this study has been created with a concept of parity between factors, with statistical analysis determining whether or not parity exists between the various factors.

3.2. Participant

3.2.1. Recruitment. Participants were recruited via email and online announcements (See Appendix B for announcement script). The emails and announcements encouraged forwarding the information to any eligible families in hopes

of a snowball effect. Online announcements were sent to appropriate Facebook groups (e.g. heritage language groups, language learning groups, etc.) and via Twitter as well as through the local university email announcement system. The announcement contained a link to complete an online questionnaire (see Appendix A), as well as necessary information for making an informed choice about eligibility, the purpose of the research, and the contact information of the primary researcher. The research window opened during summer of 2016, and it remained open until December 2016. While the original goal was to attain at least 100 responses, time considerations required the online questionnaire to close before that goal was met.

3.2.2. Participant Requirements. The eligibility requirements for participants were outlined in the announcements and on the consent form of the questionnaire. Participants needed to be 18 years of age or older as well as the parent of a child in a family that had a heritage language. The terms were defined for the perspective participants, and a check box confirmed that they were eligible and confirmed consent to participate in the study (See Appendix C for consent form).

3.2.3. Demographics. Thirty-eight participants completed the questionnaire. Thirty-six of the participants were living in the United States, one was in Singapore, and one was in Saudi Arabia. The mean average age of the participants was 43.4 years old (SD = 9.5) and their spouses' mean average age was 45.7 years of age (SD = 11.9). Twenty-six of the participants identified as the child's mother while twelve of the participants identified as the child's father. The mean average age for the children was 12 years old (SD = 7.2).

Age of arrival (AoA) data was also collected for these family members. AoA data helped provide context for the child's environment and the country of birth for the parents. An AoA of 0 meant that the child or parent was born in the country where the family was residing. Of the families included in the data, approximately one-third (37%) of the participants were immigrant families in which neither parent was born in the country where they were currently residing. Families living in the home country of the father constituted 21% of the participant families, and families living in the home country of the mother constituted 16% of the families. Families living in countries where both parents were born constituted 8% of the participant families. Seven families (18%) did not provide information related to either the father's or the mother's AoA.

As for the children, nearly two-thirds (63%) were born in the country where the parents were currently residing. Eighteen percent of the children arrived in the country in question before the age of 10, and 11% arrived before the age of 12 years of age. Three participants did not include AoA information about their children.

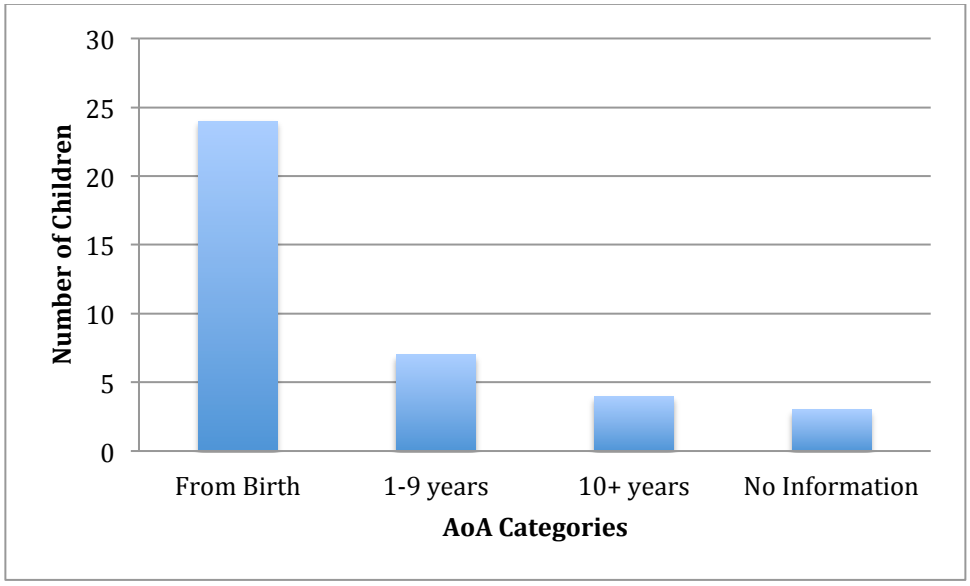

Figure 1. Child's Age of Arrival, by Category.

In regards to national language, thirty-eight participants stated that English was the national language. One participant listed Arabic as the national language. In regards to heritage languages, 12 families reported having Spanish as a heritage language, which was the most common. The second most common heritage language was German (5 families). Mandarin was the heritage language for three families; however, two other families listed "Chinese" as the heritage language without distinguishing whether the specific language was Mandarin, Cantonese, or another Chinese language. Tied for third, with three families each, were Japanese and Russian. Also Arabic and Korean were listed as the heritage languages for two families each. Heritage languages only represented by one family each included Belize Creole, Dutch, English, Estonian, Greek, Kyrgyz, Lithuanian, Portuguese, Serbian, and Urdu. (Note: the total number of families listed is greater than 38 due to the fact that a family may have multiple heritage languages. Five families listed two non-national heritage languages).

3.3. Research Design

This correlation study examines the perceived ability of potentially bilingual children and the factors that have been identified as promoting heritage language maintenance. The perceived ability scores will serve as independent variables while the survey responses (both Likert-scale ratings and open-ended responses) will serve as dependent variables.

The perceived ability scores will be rated using an ordinal scale based on the parent's judgment of their child's ability. The scales will include being "not able to use the language" for heritage language families that have chosen to be monolingual. Two lower ability ratings include "barely able" and "sometimes". Two higher ability ratings

include “able to use the language well” and “native-like”. When possible, data analysis considers each ranking individually; however, high/low rankings are used where the statistical analysis requires the use of larger samples.

The Likert-scale comments offer a seven-point scale from “strongly disagree” to “strongly agree”. The comments include four statements each related to attitude, identity, and community interaction as well as five statements each related to access to resources and parental modeling. These items are tested individually as well as combined into their respective groupings.

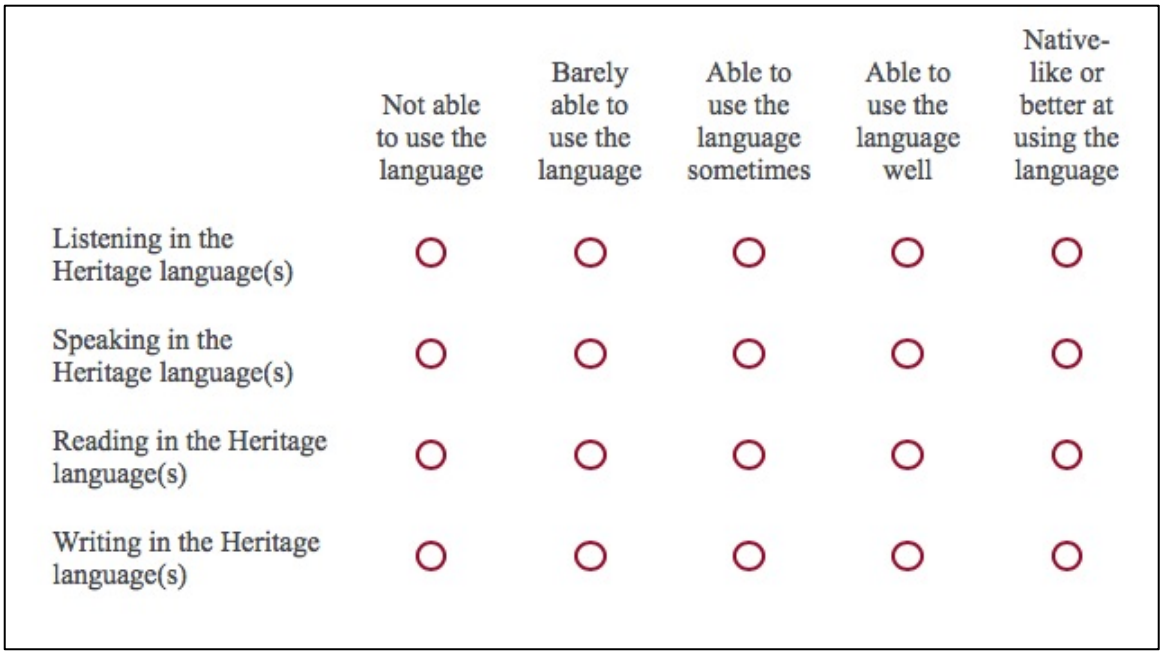

Figure 2. Survey Questions Related to Perceived Heritage Language Ability.

3.4. Data Collection Instrument and Procedures

The instrument for data collection was a questionnaire consisting of three sections. The first section contained questions related to demographic information (Age of parents/children, home languages, location, Age of Arrival, etc.). The second section contained 22 statements related to language ability, language attitude, access to and use

of heritage language resources, and language usage practices, including community, parent/child interaction, and the simultaneous use of two or more languages. The third section contained open-ended questions for a more detailed understanding of the family and its connection to their heritage. The instrument includes the following sections:

1. The demographic information that will be requested includes:
    i. Location (Country)
    ii. Home Language(s)
    iii. National language(s)
    iv. Age
    v. Age of Arrival in the Country
2. Perceived Language Ability for national and the heritage language: Mu and Dooley (2015) provided an in-depth discussion of the validity of using self-reported assessments of perceived language ability (using a 7-point Likert scale) as well as how scores can be mathematically calculated for running statistical analysis. While this measurement does not provide a discrete method of differentiating individuals of varying capabilities, it does provide a basis for researching how the factors in this study affect how others perceive the child's abilities.
3. Self-Reporting Comments: Statements of opinion are rated using the Likert scale. The statements have been adapted from Lee (2002), Yan (2003), and Lao (2004) as well as observations noted in Mishima-Mori (2011), Zhang & Slaughter-Dafoe (2009).

4. Open-Ended Questions: These questions attempt to fill in gaps from responses given in the statements. For example, while comments reference specific types of resources or benefits of being bilingual, the comments do not capture details related to the broader range of possible resources, experiences with resources, or how the culture is (or is not) celebrated in the family.

Because the first research question is asking for the extent to which the five factors—attitude, identity, resources, interaction, and modeling—relate to heritage language learning, the Likert scale survey was developed in order to collect quantitative data for the purpose of statistical testing. As noted above, the use of perceived language ability was inspired by the research conducted by Mu and Dooley (2015), which argued the alternative methods of evaluating linguistic ability, and the comments used in the survey were inspired by the articles noted in the literature review. Each comment was adapted from one of the cited articles.

The comments that reference attitude include: “The heritage language is valuable for my child’s intellectual growth”, “The heritage language will help my child have a positive self-image”, “Knowing the heritage language will help my child find a better job in the future”, and “My child can better understand the world by learning the heritage language”. Each of these statements expresses a positive attitude towards the heritage language. While it would be easy to presume that positive responses are guaranteed, research has shown that attitudes might vary by culture (Yan, 2003).

The comments that reference identity include: “It is important that my child identifies with the heritage culture”, “The child needs to know the heritage language to communicate with some of our relatives”, “My child identifies as a member of the

country that we live in", and "My child identifies as a member of a heritage language culture". While the comment referring to communication with kin may seem out of place, connecting the extended family to the language culture reinforces the related identity.

The comments that reference access to resources include: "We encourage our child to watch movies that are in the heritage language", "We often use online resources to teach our child the heritage language", "Our child regularly attends classes to learn the heritage language", "We read stories to our child in the heritage language", and "We have many books in the heritage language for our child to read". Two of these comments relate to literature, and while one could be interpreted to reference parental modeling, it also implies access to the stories that are read to children (Lao, 2004).

The comments that reference community interaction include: "There are many people in our community that speak our heritage language", "Our child usually uses the heritage language when talking to other children", "Our child sometimes uses the national language when we ask him/her to use the heritage language", and "In our family, sometimes it does not matter which language we are using". It may seem that the comments related to family might better fit into parental modeling; however, the difference between interaction (i.e., conversation) and modeling (e.g., teaching) is relevant. Interaction focuses on the child communicating with others while modeling focuses more on implicit and explicit instruction.

The comments that reference parental modeling include: "We regularly teach our child the heritage language at home", "I correct my child when he makes mistakes speaking the heritage language", "I correct my child when he makes mistakes speaking the national language", "Our child hears us speaking both the national language and the

heritage languages to each other", and "We often explain a word in one language by using the other language". These comments all focus on how parents teach their child to use language. Implicit instruction of listening to bilingual conversation is listed alongside the explicit examples of instruction (e.g., teaching, correcting, and explaining).

The use of adapted statements with specific focus helps provide face validity. The use of a variety of aspects for each factor helps develop the content validity. While the small sample size is an issue that will be further addressed, the data analysis tests were chosen in order to insure greater validity. Reliability for the data was calculated using Cronbach's Alpha to test for internal consistency. The results of both the perceived heritage language ability ($\alpha = 0.912$) and the rated comments ($\alpha = 0.830$) were found to be well above the acceptable minimum.

The data were collected anonymously via a Qualtrics survey link provided in the announcement. The first page of the survey contained a consent form, which was required to continue to the actual survey. Out of 117 responses, only 38 completed surveys contained enough information to be applicable for data analysis. The unused surveys only completed the demographics sections, sometimes with only partial completion; these responses left the comment section and open-response sections blank.

Chapter 4 Results

4.1 Data Analysis Procedure

4.1.1. Quantitative Data Procedures. The relationship between the parent's perception of their child's heritage language capabilities and the statements of agreement or disagreement were tested for significance. The results reported here were tested using the Kruskal-Wallis H test, a one-way ANOVA on ranks, with post-hoc analysis using the Mann-Whitney U test for comparing specific pairs of groups for category means and individual items that revealed significance. These tests were chosen due to the small sample size. The data was run through SPSS (charts found in Appendix D).

4.1.2. Qualitative Data Procedures. The open-ended responses were analyzed for commonalities in order to extract more categorical data. Responses, when able, were compared to the child's perceived ability data and analyzed in SPSS.

4.2 Descriptive Results

Table 1.
Means and Standard Deviation of Statement Responses

	Mean	Standard Deviation
The heritage language is valuable for my child's intellectual growth.	6.47	0.73
The heritage language will help my child have a positive self-image.	6.11	1.18
Knowing the heritage language will help my child find a better job in the future.	6.08	1.28
My child can better understand the world by learning the heritage language.	5.97	1.50

Table 1. *(Cont.)*	Mean	Standard Deviation
Our child needs to know the heritage language to communicate with some of our relatives.	6.21	1.42
My child identifies as a member of the country that we live in.	5.82	1.49
My child identifies as a member of a heritage language culture.	5.29	1.72
We encourage our child to watch movies that are in the heritage language.	5.05	1.97
We often use online resources to teach our child the heritage language.	3.82	2.15
Our child regularly attends classes to learn the heritage language.	2.89	2.09
We have many books in the heritage language for our child to read.	4.82	1.90
We read stories to our child in the heritage language.	4.74	2.20
There are many people in our community that speak our heritage language.	3.29	1.97
Our child usually uses the heritage language when talking to other children.	3.05	2.00
Our child sometimes uses the national language when we ask him/her to use the heritage language.	5.16	1.85
In our family, sometimes it does not matter which language we are using.	5.03	1.90
We regularly teach our child the heritage language at home.	5.32	1.97

Table 1. *(Cont.)*	Mean	Standard Deviation
I correct my child when he/she makes mistakes in the heritage language.	5.32	1.69
I correct my child when he/she makes mistakes in the national language.	5.16	1.65
Our child hears us speaking both the national language and the heritage languages to each other.	5.13	1.96
We often explain a word in one language by using the other language.	5.76	1.36

4.2.1 Quantitative Data. On average, the participants seem to hold the heritage language in high regard, in terms of attitude. Moreover, it should be noted that this category, in general, received the highest ratings. The overall results for the comments relating to language attitude have a mean value of 6.16 (SD = 1.21). When looking at specific comments, the most highly agreed comment was "The heritage language is valuable for my child's intellectual growth", which had a mean of 6.47 (SD = 0.73). The comment "The heritage language will help my child have a positive self-image" received a mean of 6.11 (SD = 1.18), and the comment "Knowing the heritage language will help my child find a better job in the future" received a mean of 6.08 (SD = 1.28). Finally, the lowest rated comment related to attitude was "My child can better understand the world by learning the heritage language", with a mean value of 5.97 (SD = 1.50).

In terms of language identity, the category itself received a mean of 5.88, with a standard deviation of 1.45. Two comments (a) "It is important that my child identifies with the heritage culture" and (b) "Our child needs to know the heritage language to

communicate with some of our relatives" both received an average mean of 6.21; however they had a standard deviation of 0.91 and 1.42, respectively. Only these comments were rated in the same range as the comments related to language attitude; all other scores, as noted below, received lower means and slightly wider standard deviations—which may imply that these factors play a slightly consistent baseline role in heritage language situations. That is to say, none of the participants seem to benefit from rating these comments highly. To continue, the comment "My child identifies as a member of the country we live in" received a mean of 5.82 (SD = 1.49), and the comment "My child identifies as a member of a heritage language culture" received a mean of 5.29 (SD = 1.72).

These ratings may imply that a national identity could be marginally stronger than language identity. An examination of the raw numbers of these particular comments about identity reveal that two participants disagreed on the child having either a nation-oriented or a heritage-oriented identity. One participant rated both as "neither agree nor disagree". One participant was similarly ambivalent towards nationality but disagreed that the child viewed identity as being based on heritage. Likewise only one participant was similarly ambivalent towards nationality but agreed that the child viewed identity as being based on heritage. Only two participants disagreed on national identity and agreed on heritage identity (both giving the strongest possible agreement in relation to heritage identity) while three participants disagreed on heritage identity and agreed strongly with the child identifying with the national identity (similarly with the strongest possible agreement). Five participants were ambivalent towards heritage identity, but they agreed that the child held a national identity. The largest group was the one that agreed with the

child having both a national and heritage identity, totaling 23 participants. To examine that particular group more closely, ten participants rated the identities as being equal, eight participants rated the national identity slightly higher, and five participants rated the heritage identity slightly higher. This seems to confirm a marginal favoring of national identity, which will be examined more closely in the statistical analysis and the discussion.

To continue examining the rating of comments, the ones related to access to resources received a mean of 4.26, with a standard deviation of 2.20. The comment "We encourage our child to watch movies that are in the heritage language" had a mean of 5.05 (SD = 1.97), which rated the most agreement. The comment "We have many books in the heritage language for our child to read" received a mean of 4.82 (SD = 1.90), and the comment "We read stories to our child in the heritage language" received a mean of 4.74 (SD = 2.20). The final two comments, "We often use online resources to teach our child the heritage language" and "Our child regularly attends classes to learn the heritage language", received greater disagreement than agreement, with means of 3.82 (SD = 2.15) and 2.89 (SD = 2.09) respectively. Therefore, it seems that movies are the most accessible resource for heritage language sharing. Moreover, one may question why the internet and classes are less commonly used resources, as there may be a multitude of reasons, such as an inability to use technological resources or a lack of local classes in the region.

When looking at interaction, the overall mean is 4.13, with a standard deviation of 2.14. The most highly rated comment was "Our child sometimes uses the national language when we ask him/her to use the heritage language", which has a mean of 5.16

(SD = 1.85). The comment “In our family, sometimes it does not matter which language we are using” has a mean of 5.03 (SD = 1.90). The comments “ There are many people in our community that speak our heritage language” and “Our child usually uses the heritage language when talking to other children” both received greater disagreement with means of 3.29 (SD = 1.97) and 3.05 (SD = 2.00) respectively. These ratings seem to line up with previous studies on how children in heritage language families interact with their families and community, as will be further discussed in the following chapters.

Finally, when looking at parental modeling, the trend reveals more agreement, but less than the comments related to attitude and identity. The overall mean is 5.34, with a standard deviation of 1.74. The highest agreement went to the comment “We often explain a word in one language by using the other language”, with a mean of 5.76 (SD = 1.36). Both comments “We regularly teach our child the heritage language at home” and “I correct my child when he/she makes mistakes in the heritage language” received means of 5.32 (SD = 1.97 and SD = 1.69, respectively). The similar comment, “I correct my child when he/she makes mistakes in the national language” has a mean of 5.16 (SD = 1.65). Finally, the comment “Our child hears us speaking both the national language and the heritage language to each other” received a mean of 5.13 (SD = 1.96).

4.2.2 Qualitative Data. In addition to the Likert-Scale responses, participants were also asked to complete seven open-response questions. Each question response was reviewed and summarized to identify similarities. Some responses included multiple answers. Those answers were counted separately; therefore the final total was often greater than the number of participants. At the same time, a few responses were left blank. These responses were considered to be a nil response, so they are calculated into

the percentages. The descriptive results will be provided below, with further analysis in the following section.

The first three open-response questions focused on resources for teaching the child the heritage language, starting with what resources the family used. Most respondents (n = 20, 52.6%) stated that they used books or reading to teach their child. Speaking the language regularly was the second most common response (n = 16, 42.1%). The use of movies/videos followed closely behind (n = 15, 39.5%). Nine respondents (23.7%) mentioned music as a common method for making the heritage language engaging, and almost the same number of respondents discussed having their child communicate with relatives who spoke the heritage language (n = 8, 21.1%). Travel for immersion into the language culture was mentioned six (15.8%) times while attending language classes only appeared in five responses (13.2%). The use of games appeared in a few responses (n = 4, 10.5%). Finally, three respondents (7.9%) mentioned using the Internet as a resource. Four responses were blank.

When asked what resource the participant found to be most effective, both the use of movies/videos and communicating with family tied as the most common resources (n = 9, 23.7%). Eight respondents (21.1%) claimed that speaking the heritage language regularly at home was the most effective method for learning. Next, the use of books and attending language classes were tied with seven respondents each (18.4%). Six participants (15.8%) considered travel the most effective while only two respondents (5.2%) considered music to be an effective method. None of the participants listed the use of games or the Internet. Four responses were blank.

When asked what resources the participants found to be least effective, many of the participants left the question blank (n = 15, 39.5%; compared to four blanks for each of the previous two questions). However, among the completed responses, the most common response was books (n = 9, 23.7%). The second most common response was using the internet (n = 6, 15.8%). In third place, the use of videos and attending language classes tied (n = 3, 7.9%). Two participants (5.2%) listed the use of games, and one participant (2.6%) stated that communicating with family members was the least effective. None of the participants listed regularly using the language, travel immersion, or music.

The fourth question asked about the benefits that the parent noticed of learning the heritage language. Most of the responses (n = 18, 47.4%) stated that learning the heritage language helped the child's cognitive abilities, for example one respondent stated that learning the heritage language gave the child "a broader perspective and another respondent stated that the child was "better at handling complex problems". Ten participants (26.3%) claimed that learning the heritage language helped the child have a stronger identity, such as when one participant wrote "it helps the child by opening them up to who there are and creates a sense of belonging" [sic]. Closely following identity, nine respondents (23.7%) stated that knowing the heritage language opened up more opportunities for the child, such as one parent who stated that being "bilingual is important for jobs". The positive effects on the child's attitude appeared in seven responses (18.4%), for example one participant stated that learning the heritage language "enriches their lives" and another claimed that it "increased [the child's] self-esteem". Interestingly, two participants (5.2%) noted that there can also be negative effects,

specifically making the child “feel different/weird” and being “slow in speech development”. Three responses were blank.

Participants gave many responses for ways in which the family promoted the heritage culture beyond teaching the language. The most common response (n = 12, 31.6%) was interaction with the heritage language community, particularly with family members. The second most common response was food (n = 11, 28.9%). Celebrating cultural holidays and traveling to countries that represent the heritage culture tied for third place (n = 9, 23,7%). Next, both following customs of the heritage culture and telling stories from heritage culture appeared in five (13.2%) responses. Teaching the history of the heritage culture was mentioned three times (7.9%). Two participants (5.2%) stated that they promoted the heritage culture through music and religion. Cultural sports, discussing the news, appreciating art and maintaining cultural values were each noted once (2.6%). Seven responses were left blank.

Then, the participant discussed how they identified themselves in relation to the heritage culture or the national culture. Most of the respondents (n = 14, 36.8%) identified with the heritage language culture. Seven participants (18.4%) claimed to identify with both cultures equally. Six participants (15.8%) stated that their heritage culture was the national culture, implying that their spouse was of another heritage culture. The last four respondents (10.5%) identified solely with the national language culture. Six responses were blank.

The final question asked for discussion of specific words or phrases that were more commonly used in one particular language, but not the other, or any idiosyncrasies that the family held in how they communicated. Four of the families identified as

following a "One Parent/One Language" policy, whether for the benefit of the children or due to the language abilities of the parents (i.e., one or both parents cannot speak the other language). Two families stated that they were fluent in both (or multiple) languages and often code-switched when communicating. One family stated that they only used the heritage language when communicating.

In terms of more specific categories, five families claimed to use the national language more often when discussing technical or academic topics. Two families use the national language when using idiomatic expressions or fixed phrases. One family used the national language to discuss the news related to the nation, one used the national language to talk about food, and another family stated that they used the national language (English) to say "nice" in conversation. The heritage language was more often used with commands, expletives, basic words/phrases (e.g., "How are you?"), food, and religion (two responses for each topic). Individual families mentioned other idiosyncrasies with the heritage language, including using specific words ("but", "cookies", "problematic", and "mischievous") and for reprimanding their children, applying kinship terms, or telling family in-jokes.

4.3 Analytical Results of Quantitative Data

Table 2.
Total Means (Kruskal-Wallis H)

	Chi-Squared	Df	Asymp. Sig.
Total Mean X Listening Skill	16.765	4	*.002*
Total Means X Speaking Skill	12.457	4	*.014*

4.3.1. Total means. The total means of all statement responses revealed statistically significant results when correlated with heritage language speaking, X^2 (4, n=38) = 12.457, p = 0.014, and listening abilities, X^2 (4, n=38) = 16.765, p = 0.002. Therefore, it seems that all of the factors play some role in oral language skill development. A Mann-Whitney U test revealed significant differences among the medians based on listening ability between those with no heritage language ability and those who were able to use the heritage language well (U = .000, n^1 = 2, n^2 = 10, p = .031 two-tailed) as well as those who were native-like (U = .000, n^1 = 2, n^2 = 19, p = .023 two-tailed), and those who were native-like also differed significantly with those who were somewhat capable (U = 8.000, n^1 = 19, n^2 = 5, p = .005 two-tailed) as well as with those who were able to use the heritage language well (U = 47.000, n^1 = 19, n^2 = 10, p = .027 two-tailed).

When looking more deeply at the individual factors, we see that each one has some significant interaction with specific skills. In most cases, a particular statement correlated with a factor or set of factors. However, the perceived listening and speaking skills also correlated significantly with the means of these factors, as noted below.

Further regression analysis reveals that a strong relationship (r =0.736) exists between the total survey means and listening, (F (1, 36) = 42.682, p > .000). Therefore, it seems that all of the factors seem to correlate with perceived listening ability.

4.3.2. Attitude as a factor. The statements related to attitude revealed the least correlation. Statement 12, "The heritage language will help my child have a positive self-image," was significantly related to the child's perceived listening ability, X^2 (4, n=38) = 13.338, p = 0.010. Holding this belief about learning the heritage language meant it was

more likely that the child was perceived as having better listening skills in the heritage language.

Table 3.
Attitude-Related Statements (Kruskal Wallis H)

	Chi-Squared	Df	Asymp. Sig.
Statement 12 X Listening Skill	10.265	4	*.036*

Note: Statement 12—"Knowing the heritage language will help my child have a positive self-image."

Post-hoc results reveal significant differences between children perceived to have no ability and children perceived to be native-like ($U = 3.500$, $n^1 = 2$, $n^2 = 19$, $p = .026$ two-tailed), children who were perceived to be moderately capable and children perceived to be native-like ($U = 17.500$, $n^1 = 5$, $n^2 = 19$, $p = .015$ two-tailed), and children who were able to use the heritage language well and children perceived to be native-like ($U = 50.000$, $n^1 = 10$, $n^2 = 19$, $p = .020$ two-tailed).

Regression analysis of statement 12 and listening reveals a weak ($r = 0.387$) relationship ($F(1, 36) = 6.348$, $p = .016$). Thus, the only statement that revealed significance seems to play a smaller role than other factors; at the same time, it is still a significant factor which will be further explored in the discussion.

4.3.3. Identity as a factor. Identity correlated significantly with two particular statements and the overall means. Statement 10, "My child identifies as a member of the country that we live in," when tested against the perceived writing skill, was significant, X^2 (4, n=38) = 12.514, $p = 0.014$. The more strongly the parent identified their child with the national identity, the lower the perceived writing skill rating. Mann-Whitney post-hoc

analysis revealed significant differences between children perceived to have no ability in the heritage language and children who were barely capable ($U = 5.500$, $n^1 = 14$, $n^2 = 4$, $p = .010$ two-tailed), between children perceived as barely capable and children who were rated at somewhat capable ($U = 0.500$, $n^1 = 4$, $n^2 = 5$, $p = .014$ two-tailed), between children perceived as barely capable and children who were perceived as able to use the heritage language well ($U = 4.500$, $n^1 = 4$, $n^2 = 9$, $p = .028$ two-tailed), and between children perceived as somewhat capable and children who were perceived to use the heritage language well ($U = 8.500$, $n^1 = 5$, $n^2 = 9$, $p = .042$ two-tailed).

Table 4.
Identity Statements (Kruskal Wallis H)

	Chi-Squared	Df	Asymp. Sig.
Means X Listening Skill	13.074	4	*.011*
Statement 20 X Listening Skill	16.477	4	*.002*
Statement 20 X Speaking Skill	13.338	4	*.010*
Statement 10 X Writing Skill	12.514	4	*.014*

Note: Statement 20—"My child identifies as a member of a heritage language culture."; Statement 10—"My child identifies as a member of the national language culture."

At the same time, statement 20, "My child identifies as a member of a heritage language culture," was significantly related to listening, X^2 (4, n=38) = 16.477, $p = 0.002$, and speaking, X^2 (4, n=38) = 13.338, $p = 0.010$. These results imply that a stronger

identification with heritage language culture will result in improved perceived oral language abilities.

Mann-Whitney post-hoc results comparing statement 20 and listening reveal a significant difference between children perceived to have no ability with the heritage language and children who were perceived as native-like ($U = 2.000$, $n^1 = 2$, $n^2 = 19$, $p = .030$ two-tailed), between children perceived as barely capable and children who were able to use the heritage language well ($U = 0.000$, $n^1 = 2$, $n^2 = 10$, $p = .028$ two-tailed), between children perceived as barely capable and children who were rated at native-like ($U = 0.500$, $n^1 = 2$, $n^2 = 19$, $p = .018$ two-tailed), and between children perceived as somewhat capable and children who were rated as native-like ($U = 10.000$, $n^1 = 5$, $n^2 = 19$, $p = .005$ two-tailed).

Mann-Whitney post-hoc results comparing statement 20 and speaking reveal a significant difference between children perceived as barely capable with the heritage language and children who were perceived as able to use the heritage language well ($U = 7.500$, $n^1 = 5$, $n^2 = 10$, $p = .025$ two-tailed), between children perceived as barely capable and children perceived as native-like ($U = 8.500$, $n^1 = 5$, $n^2 = 17$, $p = .005$ two-tailed), and between children perceived as somewhat capable and children who were rated at native-like ($U = 16.500$, $n^1 = 5$, $n^2 = 17$, $p = .033$ two-tailed).

Moreover, the means of the four statements were found to be significant when tested against heritage language listening ability, X^2 (4, n=38) = 13.074, $p = 0.011$. While this may seem as a contradiction based on the two statements above, balanced bilingualism is a concept that will need discussion in the next chapter so that this result can be better understood. Mann-Whitney post-hoc results comparing identity means and

listening reveal a significant difference between children perceived to have no ability with the heritage language and children who were perceived as able to use the language well ($U = 0.000$, $n^1 = 2$, $n^2 = 10$, $p = .030$ two-tailed), between children perceived to have no ability with the heritage language and children who were perceived as native-like ($U = 2.000$, $n^1 = 2$, $n^2 = 19$, $p = .039$ two-tailed), between children perceived as barely capable and children who were able to use the heritage language well ($U = 0.000$, $n^1 = 2$, $n^2 = 10$, $p = .030$ two-tailed), between children perceived as barely capable and children who were rated as native-like ($U = 1.500$, $n^1 = 2$, $n^2 = 19$, $p = .034$ two-tailed), and between children perceived as somewhat capable and children who were rated at native-like ($U = 18.000$, $n^1 = 5$, $n^2 = 19$, $p = .035$ two-tailed).

Regression analysis was also conducted on these significant findings. A weak ($r = 0.235$) relationship between statement 10 and writing was found to be non-significant ($F (1, 36) = 2.081$, $p = .158$). The lack of significance could be the result of the effect size. Nonetheless, the other correlations were found to be significant. Statement 20 had a strong relationship with both listening ($r = 0.662$), ($F (1, 36) = 28.074$, $p > .000$), and speaking ($r = 0.619$), ($F (1, 36) = 22.326$, $p > .000$). Finally, the means of statements related to identity had a strong ($r = 0.634$) relationship with listening, ($F (1, 36) = 24.231$, $p > .000$).

4.3.4. Resources as a factor. When looking at access to resources, five tests revealed significance. Statement 16, "Our child regularly attends classes to learn the heritage language," tested significantly to perceived writing ability, X^2 (4, n=38) = 14.998, $p = 0.005$. Thus, attending classes may be the best way to encourage a child to improve their heritage language writing skills. Mann-Whitney post-hoc analyses revealed

significant differences between children perceived to have no ability with the heritage language and children who were perceived as barely capable ($U = 9.500$, $n^1 = 14$, $n^2 = 5$, $p = .014$ two-tailed), between children perceived to have no ability with the heritage language and children who were perceived as using the heritage language well ($U = 20.000$, $n^1 = 14$, $n^2 = 9$, $p = .005$ two-tailed), between children perceived as barely capable and children who were somewhat capable ($U = 0.500$, $n^1 = 4$, $n^2 = 15$, $p = .017$ two-tailed), between children perceived as barely capable and children who were rated as able to use the language well ($U = 2.000$, $n^1 = 4$, $n^2 = 9$, $p = .010$ two-tailed), and between children perceived as able to use the language well and children who were rated at native-like ($U = 10.000$, $n^1 = 9$, $n^2 = 6$, $p = .038$ two-tailed).

Table 5.
Access to Resources Related Statements (Kruskal Wallis H)

	Chi-Squared	Df	Asymp. Sig.
Means X Listening Skill	13.854	4	*.008*
Means X Speaking Skill	13.265	4	*.010*
Statement 5 X Listening Skill	10.273	4	*.036*
Statement 19 X Listening Skill	10.045	4	*.040*
Statement 16 X Writing Skill	14.998	4	*.005*

Note: Statement 5—"We encourage our child to watch movies that are in the heritage language."; Statement 19—"We often use online sources to teach our child the heritage language."; Statement 16—"Our child regularly attends classes to learn the heritage language."

A significant relationship was found between statement 5, "We encourage our child to watch movies that are in the heritage language," and listening, X^2 (4, n=38) = 10.273, p = 0.036. Mann-Whitney post-hoc analysis reveals significant differences between children perceived to have no ability with the heritage language and children who were perceived as native-like (U = 1.000, n^1 = 2, n^2 = 19, p = .022 two-tailed), and between children perceived to be somewhat capable with the heritage language and children who were perceived as native-like (U = 16.000, n^1 = 5, n^2 = 19, p = .019 two-tailed).

Statement 19, "We often use online sources to teach our child the heritage language," also related significantly with listening, X^2 (4, n=38) = 10.045, p = 0.040. Therefore, technology may be useful in providing listening practice for improving children's heritage language abilities. Post-hoc analysis reveals significant differences between children perceived to be somewhat capable with the heritage language and children who were perceived as native-like (U = 17.500, n^1 = 5, n^2 = 19, p = .030 two-tailed).

The relation between access to resources and listening skill also proved to be significant, X^2 (4, n=38) = 13.854, p = 0.008, as did access to resources and perceived speaking skill, X^2 (4, n=38) = 13.265, p = 0.010. This result may be due to the fact that listening, speaking, and writing—the descriptive results revealed listening will almost always prove to be the strongest skill—all correlate significantly with access to resources.

Post-hoc analysis of the means of statements related to resources and listening reveal significant differences between children perceived to have no ability with the heritage language and children who were perceived as native-like (U = 2.000, n^1 = 2, n^2 =

19, p = .041 two-tailed), between children perceived somewhat capable and children who were perceived as able to use the heritage language well (U = 7.000, n^1 = 5, n^2 = 10, p = .027 two-tailed), and between children perceived to be somewhat capable with the heritage language and children who were perceived as native-like (U = 14.500, n^1 = 5, n^2 = 19, p = .019 two-tailed).

Post-hoc analysis of the means of statements related to resources and speaking reveal significant differences between children perceived as barely capable with the heritage language and children who were perceived as able to use the heritage language well (U = 0.000, n^1 = 5, n^2 = 10, p = .002 two-tailed), and between children perceived to be barely capable with the heritage language and children who were perceived as native-like (U = 10.500, n^1 = 5, n^2 = 17, p = .012 two-tailed).

Further analysis using regression revealed the extent of the relationships. Similar to the relationship between identity and writing, the regression analysis revealed a weak (r = 0.298) but insignificant relationship between statement 16 and writing, (F (1, 36) = 3.496, p = .070). However, the other results were found to be significant. The correlation between statement 5 and listening revealed a moderate (r = 0.507) relationship, (F (1, 36) = 12.429, p = .001). Similarly, the correlation between statement 19 and listening revealed a moderate (r = 0.507) relationship, (F (1, 36) = 12.425, p = .001). A moderate relationship was also found between the total means of the access to resources category and listening, (r = 0.594), (F (1, 36) = 19.618, p > .000), as well as speaking, (r = 0.575), (F (1, 36) = 17.812, p > .000).

4.3.5. Interaction as a factor. Statements related to interaction only reveals two significant results. Statement 6, “Our child usually uses the heritage language when

talking with other children," related significantly to both speaking, X^2 (4, n=38) = 11.746, p = 0.019, and listening, X^2 (4, n=38) = 15.024, p = 0.005. Thus, it seems that environments in which children and able to and encouraged to use the heritage language may improve their perceived oral language capabilities.

Table 6.
Community Interaction Related Statements (Kruskal Wallis H)

	Chi-Squared	Df	Asymp. Sig.
Statement 6 X Listening Skill	15.024	4	*.005*
Statement 6 X Speaking Skill	11.746	4	*.019*

Note: Statement 6—"Our child usually uses the heritage language when talking with other children."

Mann-Whitney post-hoc analysis results related to social interaction and listening revealed significant differences between children perceived to have no ability with the heritage language and children who were perceived as native-like (U = 1.000, n^1 = 2, n^2 = 19, p = .029 two-tailed), between children perceived to be somewhat capable with the heritage language and children who were perceived as native-like (U = 10.000, n^1 = 5, n^2 = 19, p = .007 two-tailed), and between children perceived to be able to use the heritage language well and children who were perceived as native-like (U = 44.000, n^1 = 10, n^2 = 19, p = .018 two-tailed).

Mann-Whitney post-hoc analysis results related to social interaction and speaking revealed significant differences between children perceived to be barely capable with the heritage language and children who were perceived as native-like (U = 7.500, n^1 = 5, n^2 = 17, p = .005 two-tailed).

Further regression analysis revealed a moderate (r = 0.496) relationship between statement 6 and listening, (F (1, 36) = 11.737, p = .002). Also regression analysis revealed a moderate (r = 0.547) relationship between statement 6 and listening, (F (1, 36) = 15.324, p > .000).

4.3.6. Modeling as a factor. Finally, when examining the relationship between parental modeling and perceived heritage language ability, three significant results were revealed. Statement 3, "We regularly teach our child the heritage language at home," tested significantly with speaking, X^2 (4, n=38) = 10.905 p = 0.028, and listening, X^2 (4, n=38) = 13.342, p = 0.010. Therefore, a child may be perceived to have better oral language skills when the parents actively work with their child.

Table 7.
Parental Modeling Related Statements (Kruskal Wallis H)

	Chi-Squared	Df	Asymp. Sig.
Means X Listening Skill	10.200	4	*.037*
Statement 3 X Listening Skill	13.342	4	*.010*
Statement 3 X Speaking Skill	10.905	4	*.028*

Note: Statement 3—"We regularly teach our child the heritage language at home."

Mann-Whitney post-hoc analysis of Statement 3 and speaking revealed significant differences between children perceived to be barely capable with the heritage language and children who were perceived as native-like (U = 17.000, n^1 = 5, n^2 = 17, p = .028 two-tailed) as well as between children perceived to be somewhat capable with the

heritage language and children who were perceived as native-like (U = 19.500, n^1 = 5, n^2 = 17, p = .048 two-tailed).

Post-hoc analysis of Statement 3 and listening revealed significant differences between children perceived to have no capability with the heritage language and children who were perceived as able to use the heritage language well (U = 0.500, n^1 = 2, n^2 = 10, p = .037 two-tailed), between children perceived to have no capability with the heritage language and children who were perceived as native-like (U = 1.500, n^1 = 2, n^2 = 19, p = .020 two-tailed), between children perceived to be somewhat capable with the heritage language and children who were perceived as native-like (U = 11.000, n^1 = 5, n^2 = 19, p = .005 two-tailed), and between children able to use the heritage language well and children who were perceived as native-like (U = 53.500, n^1 = 10, n^2 = 19, p = .041 two-tailed).

Moreover, the relation between parental modeling means and listening were shown to be significant, X^2 (4, n=38) = 10.200, p = 0.037. Thus, the family's use of the heritage language seems to improve the child's perceived listening ability.

Post-hoc analysis of means related to modeling and listening revealed significant differences between children perceived to have no capability with the heritage language and children who were perceived as able to use the heritage language well (U = 0.000, n^1 = 2, n^2 = 10, p = .031 two-tailed), between children perceived to have no capability with the heritage language and children who were perceived as native-like (U = 1.000, n^1 = 2, n^2 = 19, p = .029 two-tailed), between children perceived to be somewhat capable with the heritage language and children who were perceived as native-like (U = 18.000, n^1 = 5, n^2 = 19, p = .037 two-tailed), and between children able to use the heritage language well

and children who were perceived as native-like ($U = 51.000$, $n^1 = 10$, $n^2 = 19$, $p = .042$ two-tailed).

The regression analyses conducted on these findings revealed varying levels of correlation. Statement 3 and speaking were found to have a moderate (r = 0.587) relationship, (F (1, 36) = 18.912, $p > .000$). However, a strong (r =0.6) relationship was found between statement 3 and listening, (F (1, 36) = 20.254, $p > .000$). The total means for the modeling questions and listening revealed a moderate (r = 0.568) relationship, (F (1, 36) = 17.204, $p > .000$).

4.3.7 Summary of quantitative analysis results. Of the five factors tested in this survey, the one that seems to correlate the most with perceived heritage language proficiency, not surprisingly, was access to resources. However, the fact that identity ranked right beside access to resources is a surprising takeaway. Modeling and interaction rank third and fourth, respectively. Finally, attitude revealed the fewest correlation of all the five factors.

The post-hoc analysis revealed multiple instances of significant differences for each level of perceived ability, except in differences between children who had no ability in the heritage language and children who were somewhat capable in the heritage language. The most differences were found when comparing children who were somewhat capable in the heritage language and children who were perceived to be native-like (11 instances). The second likely set to have significant differences were children with no ability in the heritage language and those children who were perceived to be native-like (8 instances). The differences between children who were perceived to be barely capable and children who were perceived to use the heritage language well were

found to be significant in six instances. In six instances, significant differences were also uncovered between children who were perceived to be barely capable in the heritage language and those children who were perceived to be native-like. Five instances of significant differences were noted between children who were perceived to use the heritage language well and those children who were perceived to be native-like. Significant differences between children with no ability in the heritage language and children who were perceived to use the heritage language well appeared in four instances. All other comparisons (with the one exception) having significant differences appeared in two instances respectively.

Regression analysis revealed the strongest correlations in survey items/means when compared to identity and perceived abilities related to oral communication. The total survey means also correlated strongly with listening. Moreover, eight moderate correlations were found; again these results involved the oral communication skills. However, the correlations involving writing were found to have weak, insignificant correlations.

4.4 Analytical Results of Qualitative Data

4.4.1. Number of resources used. A deeper examination into the use of resources reveal that the use of four or more resources in language learning does not significantly affect perceived language capabilities while children who use at least three different resources do show significant differences from those who use fewer resources. The comments related to use of resources were statistically analyzed using X^2. When compared to perceived listening, speaking, and reading abilities, the differences between using any resources compared to none, using two or more compared to only one, and

using three or more compared to two or less were all significant. None of the results were significant in relation to writing ability.

In an examination of the number of resources used, a significant difference was found between children with no capability, children with low-level capabilities (barely capable and sometimes capable) and high-level capabilities (uses the language well and native-like) when looking at those who used no resources and one or more resources for listening, X^2 (2, n = 342) = 43.435, p < 0.001, for reading, X^2 (2, n = 342) = 21.243, p < 0.001, and for speaking, X^2 (2, n = 342) = 70.120, p < 0.001.

Moreover, a significant difference was found between children with no capability, children with low-level capabilities and high-level capabilities when looking at those who used only one resource and more than one resource for listening, X^2 (2, n = 297) = 38.544, p < 0.001, and when looking at children with low-level and high-level capabilities for speaking, X^2 (1, n = 297) = 34.333, p < 0.001.

Finally, a significant difference was found between children with no capability, children with low-level capabilities and high-level capabilities when looking at those who used two resources and more than two resource for listening, X^2 (2, n = 297) = 16.818, p < 0.001, and for reading, X^2 (2, n = 297) = 11.138, p = 0.004, and when looking at children with low-level and high-level capabilities for speaking, X^2 (1, n = 297) = 11.137, p = .001, and writing, X^2 (1, n = 297) = 6.656, p = 0.036. No significance was found when comparing those who used three or fewer resources and those who used four or more.

4.4.2. Types of resources used. K-Independent samples analysis was conducted on the use of specific types of resources in order to find significant differences in which

resource was used. Only two resources were found to show a significant difference. Families that used video as a resource had children who scored significantly higher in perceived listening, X^2 (1, n=38) = 5.112, p = 0.024, speaking, X^2 (1, n=38) = 4.780, p = 0.029, and overall heritage language ability, X^2 (1, n=38) = 3.981, p = 0.046. Those families who considered other family as a resource had children who scored significantly lower on perceived writing ability, X^2 (1, n=38) = 3.872, p = 0.049.

4.5 Summary of Data Analysis Results

The data analysis examined five aspects of the survey. First, the descriptive analysis of the Likert-scale survey comments revealed the average heritage language family agrees with the comments from the survey, which means that they are reflective of heritage language families. Having a positive attitude towards the heritage language culture rated most highly, and having the ability to interact in a heritage language community rated the lowest (although, the overall response was positive). Second, the descriptive analysis of the open-ended section revealed that families approach heritage language maintenance in a variety of ways; no single strategy was followed by the majority of participants. Third, statistical analysis revealed that seeing oneself as part of the heritage language culture correlated strongly with attaining higher levels of perceived heritage language ability. Access to different types of resources also correlated moderately with higher perceived heritage language ability. Fourth, the use of video was found to be significant; this significance is also reflected in the opinions of the parent response to what they felt was the most effective type of resource. Finally, the use of three or more types of resources was found the be significant.

Chapter 5 Discussion

5.1. Overview of Discussion

The results from the statistical analysis indicate a high degree of correlation between heritage language learning, identity, and access to resources. Access to resources has long correlated with academic success as noted in the literature review (Roscogni & Ainsworth-Darnell, 1999); therefore, to see it translate into language learning success does not seem so surprising. However, the relative influence of identity seems to spark an ember of curiosity. When we meet the immigrant children who adapt to the new environment quickly—for example, seeing my own three-year old daughter who changed language of preference in the span of about a month—could it be a change in identity? Or could it be an identity-defining moment? While the other factors still play a role in heritage language maintenance, the discussion will address the research questions with an emphasis on access to resources and identity.

5.2. Discussion of Results to Research Questions

5.2.1. Which factors do parents more commonly promote? According the responses to the open-ended questions, parents claim to use books, casual conversation, and video resources most of the time. Over half the participants stated that they had printed materials available for their children to use, while around 40% listed that speaking at home was one resource and nearly 40% had access to videos to use as resources. Interestingly, when asked which resources were the most effective, respondents stated that modern resources (like the Internet and videos) and family interaction are the most effective methods for aiding in heritage language learning and

maintenance. Finally, 40% of the respondents stated that "Nothing" was the least effective resource. Further analysis revealed that using three different types of resources was significantly more effective than using two, one, or no type(s) of resources.

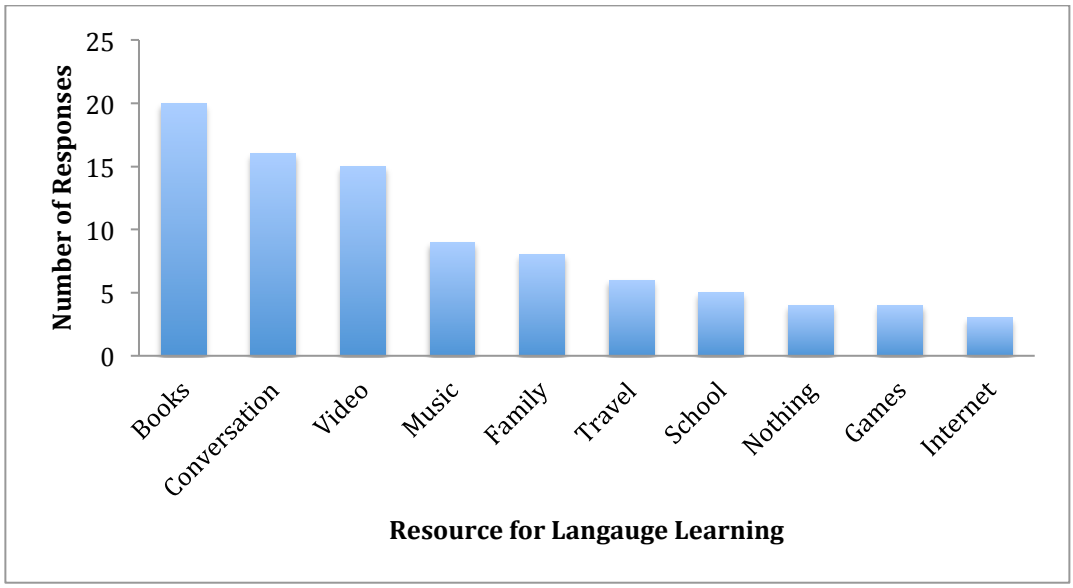

Figure 3. Most Commonly Utilized Resources.

Research on the use of technology to encourage learning is highly complex and still depends greatly on the user and how the technology is incorporated (Golonka, E. M., Bowles, A. R., Frank, V.M., Richardson, D. L., & Freynik, S., 2014). A child placed in front of a screen will learn minimally, yet a child interacting with language via technology may learn considerably more effectively. In such cases, the technology may not be the reason for success, but rather the human interaction or perceived return on investment may hold a stronger motivation for effective learning. Moreover, while a layperson might imagine that technology equates to more effectiveness, factors (like community interaction and parental modeling) may be overlooked due to "post hoc ergo propter hoc" thinking.

While these technological resources may provide encouragement and motivation, the prominence of family interaction and home language usage may play a role in identity development. Familial immersion—a term that I would like to use to describe an environment in which the family has established heritage language as the main means of communication, which could include a larger community (e.g., an ethnic community)—seems to be a key aspect of creating a linguistic foundation for heritage language maintenance. The response related to "Our child needs to know the heritage language to communicate with some of our relatives" rated highly (6.21 out of 7; 6 = agree); meanwhile, the statement "There are many people in our community that speak our heritage language" rated relatively lowly (3.29 out of 7; 3 = neither agree nor disagree). This implies that a majority of these families use the heritage language to interact with extended family members as opposed to interacting with those outside of their families. Furthermore, when asked about what resources they used to teach the children over 20% of the response referenced extended family.

5.2.2. To what extent does each of these factors relate to heritage language maintenance? Testing revealed correlations between eight individual statements and three sets of comments, as noted below. Moreover, a correlation was uncovered between the full survey and both listening and speaking. The fact that written skills did not correlate as much as oral skills did may be the result of the small sample size, how skills develop, or issues related to the instrument used in this research (which will be addressed in the conclusion). The following will address each factor and its correlation to heritage language learning.

Correlations of results. First and foremost, the total means correlated with speaking and listening. One perspective that might explain this is the common order of language skill acquisition. Children likely learn receptive skills before productive skills, and children likely learn oral skills before written skills. Thus, the order of acquisition should be, in order: listening, speaking, reading, and writing; however, the possibility exists that second languages may be learned via written skills rather than oral skills. Nonetheless, this pattern of acquisition can be seen in the participants' ratings of their children's heritage language ability. With only one exception, the listening skills were rated higher than or equal to all other skills. Speaking ability was rated higher or equal to reading and writing abilities, but occasionally less than listening ability. Reading was rated less than or equal to oral abilities (speaking and listening) but higher than writing ability. Finally, writing ability was consistently rated as less than or equal to all of the other abilities.

When looking at attitude, only a correlation with listening could be found. This correlation tells us very little, particularly because all of the other factors also correlate with listening as well. This particular issue will be discussed more in the general discussion.

A number of statements and the total means of identity correlated in part with listening, speaking, and writing ability. The correlation between writing and the statement "My child identifies with the national language culture" was a negative correlation. Apparently, the more a child identifies with the national language culture, the less likely the child will be to learn written skills in their heritage language. However, the more a child identifies with their heritage language culture, the more likely the child will develop

more advanced oral skills in the heritage language. When families struggle with encouraging children to learn the heritage languages, growth in oral communication skills can seem like small victories. From the children's perspectives, writing skills—particularly when the orthography varies greatly—can seem overwhelming, particularly when the child is unlikely to encounter the language in the written form. One may easily forget that a number of languages worldwide exist without a written form. Thus, a perception that needing to learn a specific writing system makes sense. It should be noted that identifying with the heritage language culture did not seem to encourage writing skills. Therefore, a balanced identity would not necessarily mean that the child has developed or will develop writing and reading skills. Future research will need to consider the gap between oral and written communication skills.

In terms of access to resources, correlations exist with writing, speaking, and listening. Overall access to resources (i.e., the total means) correlates with the likelihood of having advanced oral skills. Higher perceived listening skills also correlates with the use of online resources and movies while higher perceived writing skills correlates with attending heritage language classes. If these resources are incorporated into sound pedagogical practices or some form of meaningful learning, then the use of videos aiding in oral communications actually makes sense. However, previous research has questioned the viability of videos in encouraging learning (Golonka, E. M., Bowles, A. R., Frank, V.M., Richardson, D. L., & Freynik, S., 2014); historically, video has been seen as an ineffective tool according to. educational research while the popularity has an issue. In terms of the efficacy of classroom learning, educators strive for correlations between education and learning; therefore, if we presume that the teaching is being conducted by

pedagogical specialists, then we can assume that such a correlation is reasonable. While this is an assumption, it is an assumption based on sound reasoning. Nonetheless, regression analysis did not reveal a significant correlation; this may be a sample size error, and more research should be conducted on specific programs.

When looking at interaction within the community, only two skills correlated specifically with one item. Children who are able to converse with other children in the heritage language are more likely to have advanced oral communication abilities. Such a finding should not be surprising. This finding aligns with previous research studies (Sandel, Chao, & Liang, 2006; Moffatt & Milroy, 1992), which have noted that children will use the language of their peers.

Finally, when examining parental modeling as a factor, three correlations were noted. The overall means correlated positively with the child's perceived listening ability. Moreover, parents actually teaching the heritage language to their children correlated positively with both speaking and listening. This finding echoes the hypothesis in Comeau, Genesee, & Lapaquette's (2003) study that children "are sensitive to the rates of … input and can model their output in accordance". Being a child's initial interlocutors would suggest some level of proficiency. However, part of the impetus for heritage language research revolves around the loss of the language as children age. Because teaching over mere interaction is a key correlation, we may consider it a key finding.

In summary, it seems that listening correlated with many of the items and each of the factors. Speaking correlated with all of the factors, except attitude; writing only correlated with identity and access to resources. Reading did not correlate with any of the factors. Of these factors, both identity and access to resources seem to play a stronger

role in heritage language maintenance considering the multiple correlations in the findings. Nonetheless, interaction in the community and parental modeling cannot be dismissed, specifically in relation to oral communication.

Extent of Relationship. The use of regression analysis on the significant finding revealed a number of interesting findings. The strongest relationships in the study were those that involved identity. The majority of findings from the regression analyses revealed moderate correlations. However, the two relationships that correlated with writing were both found to be weak; moreover, these particular relationships were found to be non-significant, possibly due to effect size.

Identity is the core of one's being and a psychologically integral aspect of being. Therefore, revealing identity to have the strongest correlations is not necessarily a surprising finding. Programs that attempt to develop the heritage speaker's identity, such as those in Hawaii (Snyder-Frey, 2013) as well as some Japanese language schools (Endo, 2013) are likely to provide greater success rates. Of the six participants who rated each of their child's abilities as being near-native, five of them rated heritage culture identification as "strongly agree". Moreover, four of them lived in families that either only used the heritage language or used both the heritage language and the national language. One of these six families stated that they regularly code-switch in the home.

As for the correlations with access to resources, research such as Zhang and Slaughter-Defoe (2009) exemplify the relationship with economic success and language preference. The Fujianese families in the United States, who were mostly working class families, stressed the study of English over their local heritage language. Meanwhile, Chinese families that represented a professional upper-middle class encouraged

bilingualism. Having access to economic resources transforms language learning from a tool for survival to a sign of one's status.

The weak correlations with writing bring up important questions about what it means to be a user of a language, particularly a heritage language. Eighteen families claimed that their child was near-native at both speaking and listening, but only six families claimed that their child was near-native with reading and writing. Along the same lines, only one family claimed that their child had no ability at speaking and listening, but 13 families claimed that their child had no ability at reading and writing. These finding again fall in line with the order of acquisition. We should expect to find more individuals who are proficient at oral communication and fewer who are proficient in written communication. The non-significant regression analysis findings related to writing might be related to there being such a small sample size. It may be that differences in oral and written language skills should be examined using different instruments. If we consider current theories of language, we might pose the premise that oral communication skills are naturally ingrained in human cognitive development while written communication skills are learned skills that do not come naturally to humans. Therefore, presuming these skills to be equally measured by the same instrument could be a misguided premise.

5.2.3. Which factors differ between children who are more capable in their heritage language and those children who are not?

Identity. Identity correlated with listening, speaking, and writing. The means of the comments related to identity correlated with listening. A likely explanation for this correlation could be that families where the child identifies with the heritage culture, the

heritage language is being spoken. Thus, the child develops their listening abilities. Moreover, listening and speaking correlated positively with the statement, "my child identifies with the heritage culture." Again, the likely explanation could be that the child is in an environment where the heritage language is actively used for communication; therefore, their abilities are likely to be better.

Interestingly, the comment "my child identifies with the national culture" correlated negatively with writing. This correlation, while weak, marks an area that is often hidden in the research. Since the focus is on the positive identification of one's heritage culture, those who identify positively with their national culture do not get much attention. Re-examination of the raw data reveals that 17 participants "strongly agree" that their child identified with the national culture. Out of these children, only six children were reported as not identifying with their heritage culture. Of those six, three were raised in a "national language only" family. The other eleven families had balanced identities, and five of those eleven families perceived their child as having near-native or highly proficient heritage language abilities all around.

Attitude. Only one comment from the attitude category correlated with perceived language ability. Specifically, the comment "The heritage language will help my child have a positive self-image" correlated with listening ability. Considering that this category was found to have the least predictive capabilities, it would reason that attitude could be seen as the least valuable attribute; however, it could also be argued that having a positive attitude towards the heritage language/culture is a foundational step in moving towards heritage language learning. On a 7-point scale, with 7 representing "strongly agree", the average attitude score was 5.97, between "slightly agree" and "agree".

Moreover, less than 18 of the 152 combined responses were in the "disagree" to "neither agree nor disagree" range. Attitude was not predictive because, regardless of heritage language ability, a large majority of the participants held positive attitudes.

As noted in previous research (Yan, 2003; Nesturak, 2010; Turjoman, 2013), it is common that individuals in heritage language families are likely to hold positive attitudes regardless of their capabilities with the heritage language. Looking back at Yan's 2003 study, in all instances the percentage of families who valued their heritage was much greater than the percentage of those who were proficient in their heritage language. Nesturak (2010) also reminds us that even parents who promote bilingualism in their families struggle with encouraging proficiency to their children, and Turjoman (2013) revealed that while over 90% of the parents expressed holding positive attitudes towards wanting their children to speak the heritage language, less than two-thirds were actively teaching their children. Therefore, it would seem that positive language attitudes are not strong predictors for heritage language capabilities.

Attitudes toward the heritage culture can be expressed in numerous ways. The participants in this study provided diverse responses. While the most popular response was interacting with the heritage language community, less than one-third (31.6%) of the respondents gave such an answer, which means that over two-thirds of the participants aren't highly integrated into their heritage language community. The other responses given by the participants (e.g., food, holidays, customs, etc.) can easily be disconnected from the heritage language.

Access to resources. The category of access to resources provided the greatest number of correlations. The total means correlated with both speaking and listening. The

statements “We encourage our child to watch movies that are in the heritage language” and “We often use online sources to teach our child the heritage language” correlated with listening, and the statement “Our child regularly attends classes to learn the heritage language” correlated with writing.

Resources often represent opportunities to use and practice the heritage language in a meaningful manner. These resources also provide exposure to the heritage language. However, the efficacy of various forms of technology are questionable according to research (Golonka, E. M., Bowles, A. R., Frank, V.M., Richardson, D. L., & Freynik, S., 2014). Nonetheless, parents indicate that audio-visual and/or online interactive technologies are working to help promote heritage language abilities. As noted in the results, combined technologies correlated with improved skills up using three different resources (beyond three offered no significant improvement).

As this research is founded on the concept that heritage language acquisition is a complex process that develops due to numerous diverse factors, the finding that multiple resources offer greater improvement in heritage language abilities seems understandable. However, a need for more specifically designed research exists. Questions about the type, duration, and value of the resources are worthy of deeper investigation.

Community interaction. Only one comment correlated with perceived language abilities. Specifically, the comment “Our child usually uses the heritage language when talking with other children,” correlated with both speaking and listening. Like many other correlations, this result confirms the obvious. Using the heritage language conversationally should help the child’s skills develop in a meaningful way. If a child is regularly immersed into a language culture, that child is expected to be better at speaking

and listening. The child essentially could become a native speaker of the language if there is a large enough community to become immersed in.

Parental modeling. The total means of parental modeling along with the statement "We regularly teach our child the heritage language at home" correlated with perceived listening ability, and the statement itself also correlated with speaking. As with access to resources discussed above, intentionally educating children in the heritage language seems to be a greater predictor of proficiency than casual usage in the home.

This evidence opens new doors to the age-old debate between implicit and explicit instruction. Implicit instruction is the process of learning by doing; explicit instruction is being told exactly what to do and what to know. Community interaction and parental modeling are generally forms of implicit instruction while attending classes and being taught often involve explicit forms of instruction, such as grammatical correction. Interestingly, the statements related to correcting children did not individually correlate with perceived heritage language capabilities; however, previous research on parental correction has revealed that young children often ignore the correction due to focusing instead on meaning making (Mishina, 1999; Mishina-Mori, 2011).

5.3. General Discussion

After considering the information attained from this sample, one concept stands out: identity motivates learners. Having a strong identity tied to the heritage culture seems to be a possible predictor of a child's willingness to learn the heritage language. The data seem to be in line with what Fishman (1966) discussed in his findings; the regions where heritage language speakers were most successful at maintaining the heritage language were also the most insular. However, these regions are also likely to be

weaker in national language, thus limiting the child's ability to integrate and succeed in society. However, according to De Houwer (2015), well-being and harmonious bilingual development also align with the data collected in this study. De Houwer suggests that ideally children should develop both languages with equal fluency as to avoid embarrassment when attempting to communicate in the heritage language and to develop a more positive attitude toward both languages. A strong national identity correlated negatively with writing skill development in the heritage language. However, the means of the identity scores also revealed a positive correlation with oral language development. Therefore, a child who has a strong identity tied to both cultures will likely develop advanced oral communication skills. If we include the finding that formal education could improve the possibility of writing, then we see the possible development of an ideal bilingual.

The promotion of heritage language culture via immersed environments and formal education could imply support for social interaction theories of development. Current linguistic research on identity in heritage language learning leans heavily on social psychology. For example, Duff (2007) includes the influence of Jerome Bruner's interactionist approach to describe how language and culture interact to develop identity. Fuller (2007) points out the social identity theory proposed by Kroskrity alongside Penelope Eckert's sociolinguistic research. Abdi (2011) points toward the value of positioning theory as proposed by Burcholtz and Hall's work and speech accommodation theory as proposed by Giles. More recently, Trofimovich and Turuševa (2015) have discussed ethnic identity theories as proposed by the social psychologist Wallace Lambert. Each of these theories warrant further investigation as well as comparative

research in order to better understand the mechanisms that are at work. However, at this time, a great deal of theories have been proposed to help explain the role that identity plays in the greater scheme of language acquisition.

5.4. Summary of Discussion

In summary, the answers to the questions asked at the beginning of this study are as follows:

- Which factors do parents more commonly promote?
    - Using resources as study tools
    - Familial Immersion, which means using the heritage language with family
- To what extent does each of these factors relate to heritage language maintenance?
    - Attitude seems to be an integral feature of promoting heritage language learning
    - Identity seems to play a significant role in a child's language preferences
    - Access to resources seems to aid in language skill development
    - Community immersion seems to aid in oral communication skills
    - Parental modeling seems to aid in oral communication skills
- Which factors differ between children who are more capable in their heritage language and those children who are not?
    - Having an strong heritage culture identity and access to resources seems to be the key distinction between heritage language learners and children who do not develop heritage language abilities

Therefore, looking more into developing a positive heritage language identity and providing heritage language learners with more resources, particularly those using interactive technology, may be a method to encourage the learning of heritage languages. Programs, such as the Hawaiian revitalization project, are successful examples of this combination of identity development and resource provisioning.

Chapter 6 Conclusions

6.1 Summary

The goal of this research has been to better understand the motivating factors behind heritage language maintenance and learning. In the face of challenges to America's diversity often rearing its head, the need to better understand and encourage bilingual development grows. The review of literature attempted to classify previous research into heritage language maintenance into five distinct categories. First, studies into language attitudes revealed the ways in which people express our approval or acceptance of languages. Second, research related to identity noted how one expresses themselves to the world and to their selves in relation to "who they are". Third, a great deal of research focused on questions related to the ability to afford or access resources that encourage language development. A fourth area of interest revolves around the local community in which the child grows up and interacts with other people. Finally, research looking into parental modeling was discussed, as the parents are often a child's first guides to communication.

Based on the literature and the limited quantitative studies that have been conducted in this field, I designed a survey that would allow for statistical analysis. The survey and its findings were the first quantitative approach of how these various factors interact. The goal of the quantitative approach was to analyze patterns of significance and correlations that have the strongest effect. Participant survey responses were tested using Kruskal-Wallis non-parametric methods due to the limited number of responses. Post-hoc testing was conducted using Mann-Whitney U and multiple regression analysis.

In addressing the first research question that I posed, to what extent do these factors relate to heritage language learning, this study has discovered 18 significant findings based on the statistical analysis. Specifically, heritage language listening skills related significantly with all five factors. Heritage language speaking skills related to all of the factors, except language attitudes. Writing skills in the heritage language were found to be in opposition to having a stronger national language identity, but heritage language writing skills seems to improve with attending language education programs. Reading abilities for the heritage language did not seem to be connected with any of the factors.

When asking what factors likely played a difference in a child's ability to learn the heritage language, having a positive heritage language identity and having access to resources seemed to separate the near-native speakers and those barely able to use the heritage language. The power of identity to define the individual could be affecting motivations, and this finding could inspire new avenues of research to help improve the field of linguistics' understanding of the process of language change, language contact situations, and language loss. The role of having access to resources plays in heritage language learning may seem obvious; however, there could be underlying interactions. On the surface, providing access to resources my simply make it easier to learn. On the other hand, a culture with many varied resources may attract the attention of people from other cultures who simply desire resources, especially if the individual finds their own culture lacking in power and resources. Moreover, the power of cultural capital to attract the attentions of outsiders who want to join the culture has not been thoroughly researched.

The third questioned posed in this research asked parents how they utilized the heritage language with their children. The respondents noted that interactive technology and extend family interactions were the most common methods of reinforcing heritage language skills. The responses also noted that families were very idiosyncratic in relation to what role the heritage language played in the family. Technology, even interactive technology, sits unsteady in terms of efficacy. While technology attracts attention and often appeals to the senses, the use of videos, games, and devices usually seem to fall secondary to other aspects of interaction. Questions, such as, "who provided the technology?", "Are the parents participating with the child when using the technology?", and "Are the lessons from the technology being reinforced outside of using the technology?". The answer to these questions could influence how we perceive and use technology as well as help define best practices in teaching with interactive technology. As noted previously in this study, the family can ultimately represent multiple factors. Family helps define the child's identity, provides opportunity for interaction, and provides models of language usage. Some children will converse freely with extended family switching between languages; other children will not be able to communicate with their grandparents due to lack of language skills. Therefore, the interactions at play with familial communication deserve deeper investigation.

Therefore, the speakers who are perceived to have the most advanced oral heritage language ability are those who have adopted an identity connected to that language culture. Moreover, this assertion takes into account maintaining a balanced identity between the heritage language and the national language. Second the factor that plays an important role with perceived advanced heritage language skills is having access

to resources a variety of resources. Children who have access to more resources are more likely to be perceived as having more advanced skills in oral and written communication. One interesting note is that of the resources discussed by the participants, the reported use of movies/videos seems to be a significantly effective method of improving listening skills; however, this statistic challenges previous research in the field of language acquisition.

Also of note, perceived reading skill did not match up with any of the factors, resources, or items tested in this survey. Therefore, no conclusions can be drawn about perceived reading ability from this data. As a receptive skill, reading has long been a challenging skill to test. Finally, this collection of data is also unable to shed any light on what factors significantly affect perceived listening ability because all of the factors seemed to be moderately related.

6.2 Implications

The findings in this study may have future implications on heritage language learning, maintenance, and research. The theoretical implications mainly revolve around a better understanding of identity and identity construction during child development. While identity will also play a role in practical implications, the findings also reveal the power of having access to resources, and these findings further support the concept that education requires funding for resources, materials development, and supporting quality educators.

The theoretical implications of these findings reveal the possibility that identity may play a major role in heritage language acquisition. Social psychology, sociology, anthropology, sociolinguistics, and discourse studies have all taken time to examine the

concept of identity; nonetheless, identity is still an elusive concept that has been defined and redefined numerous times as noted in the review of literature in order to take into account the various manifestations of the subjective and objective aspects. More research is needed in order to better understand the role that identity plays in heritage language learning. I plan to move my own research in this direction, after seeing first-hand how my children negotiate their own bilingualism and multicultural identities. Moreover, I was inspired by a student who could not speak to her own grandmother because they spoke different languages. Questions of why these decisions are made? Was it purely a choice of the child? Did the environment demand bilingualism? Were these individuals encouraged to be bilingual? Obviously, this perspective bleeds into interactions with parents and community; however, the findings support the possibility of blended influences that define the complexity of social issues in general.

Topics such as language stigmatization and regional solidarity may also provide greater insight into how speakers see their own identity as reflected in their linguistic choices. Eckert's (1989) seminal work on linguistic variation fell along such lines as identity (via social networks and socio-economic standing). These concepts have been echoed in the research presented here. Moreover, I strongly feel that issues related to dialect usage may constitute a part of the overall bigger picture. Where will this lead sociolinguistic research in the future? How will understanding the link between identity and language usage help us (and others)? For heritage language maintenance, this understanding of identity could be the key to encouraging growth and resurgence. As noted in the literature review and the discussion, the Hawaiian revitalization programs have had a great deal of success in these aspects.

As we turn to the more practical implications, we can see how approaches to positive identity building may play a role in encouraging students. Stigmatization will only discourage future heritage language speakers. Thus, incorporating that cultural pride into the pedagogical system will be instrumental in encouraging long-term learning. This consideration echoes the calls for diversity in representation of minorities in student textbooks (Otlowski, 2003; Ninnes, 2000). Moreover, improving access to resources is also likely to encourage younger speakers. The technology today is often easy to access and modular. Therefore, developing materials for children to learn the heritage language should be easier than it once was. However, it may be that possibly existing trends towards privatization of education will hinder the development of meaningful resources for lower income immigrant communities. Heritage language cultures that receive corporate or governmental support, like Korean and Japanese, will have strong advantages over lesser-known languages. However, this begs the question of how at-risk heritage languages like Korean and Japanese are when compared to lesser-known languages like Hmong or Khmer. Nonetheless, efforts to support struggling languages will need support in order to make the greatest efforts for maintenance.

These implications are not earthshaking by any means, but there is a clear precedence to affirm each one. This study will easily fit into the rest of literature to enable and encourage future research into heritage language learning and heritage language maintenance.

6.3 Limitations and Suggestions for Future Research

Five limitations of this study could be considered as points for future research. The limitation that I will discuss here are the small sample size, the lack of nationally or

culturally specific background requirements, the minimal qualitative support from participants, and the use of perceived abilities over tested abilities. Each of these issues were scrutinized, and ultimately justified, in this study; however, the implication of these choices is that the current study can be a point of comparison for future studies.

First, the obvious issue with this study is the small sample size. In order to gather the best sample, a much larger sample is needed. While the tests selected for statistical analysis were chosen to counteract the small sample size, in quantitative research of this scope, the large the sample size, the greater confidence one will have in the results. The 38 participants who completed the study may or may not be representative of the majority of heritage language families. Therefore, future quantitative studies could use these results as a benchmark for comparison.

Second, the current study chose to allow for participants from any country and any cultural background in order to generalize as much as possible. Each of these points will be discussed separately. The option to allow worldwide participation could have been problematic. By inviting participants worldwide, the study was able to solicit responses from a wider audience. For example, a large number of uncompleted forms came from individuals from Africa and Asia; unfortunately, many of these individuals did not participate beyond the demographic information. To reiterate, there were a total of 117 responses to the survey, but only 38 were complete. Of the completed 38, only two responses came from outside of the United States. Two participants could have been eliminated in order to focus only on families living in the U.S.; however, ultimately, these two participants were included. Future research could chose to focus solely on a particular nation, especially considering the amount of immigration that occurs in

numerous countries around the world. Individual countries could compare itself to other countries in order to uncover patterns of similarity.

The open requirement for heritage language culture, on the other hand, seemed to be advantageous in this endeavor as the pool of participants represents 19 heritage language cultures. Nonetheless, focusing on a particular heritage language culture could allow researchers to better understand local practices within a community that appear to be or not be as effective at promoting the heritage language. Moreover, research may help uncover possible discrepancies that could exist, for example, research on a particular culture that lacks access to resources and the implications of such circumstances. Also, there could exist discrepancies in which a culture, if any, may be more motivated to teach their children at home. While the results here provide a more generalized look at heritage language families, future research may help uncover cultural differences in cultural practices and preferences.

The fourth limitation was a lack of qualitative data. While the questions at the end of the survey were able to provide a little support to the statistical data, a more in-depth follow-up would provide a clearer picture. For example, when families promote culture through history, storytelling, and celebration, one might wonder what vocabulary is being used or taught. With this size of a sample a mixed methods approach with optional follow-up interviews could have been possible. This option was considered during the study design phase, but it was dropped due to hopes for a larger sample with a more international reach. Future studies with a small sample size or a more localized participant pool could take advantage of mixed methods strategies. One of the areas of weakness in many previous heritage language studies (as mentioned numerous times

here) has been the lack of quantitative research. In this study, a lack of qualitative data could be seen as equally weak.

Finally, another area of concern is how child skills were rated as well as how the items were grouped. This study used parental perception of the child's ability rather than a standardized scale; therefore, the equality of ratings could come into question. Could one parent say their child can sometimes use the heritage language and another parent say that a child of the same ability use the language well? Obviously, the problems inherent in any survey of opinion could have such errors. Although such issues could exist, questioning these completely would entail questioning numerous studies throughout decades of social science's history. Nonetheless, using standardized tests to rate the students' abilities could provide stronger evidence to support the claims made here. When considering other issues with the instrumentation, more testing may need to be conducted using specific items and leaving off specific items. While each item was attested in the literature, and the reliability and the validity were both scrutinized, the combination of items may have been an exercise in overreaching.

Ultimately, these limitations were choices that had to be made in designing these studies. More research that changes even one of these factors could help us better understand how best one might go about passing on a heritage language to their children. Such research could be used to further support the evidence from this study's findings.

In terms of future research, this study establishes a starting point for more quantitative research in the field of heritage language maintenance. The significance of these results should neither be overblown nor ignored. More importantly, if the small sample was able to produce significant results, it would be very valuable to uncover what

information a larger sample could produce. A more rigorously developed plan of action for data collection could easily produce the number of participants needed; however, this would likely need to be an concerted effort on the part of a group of researchers.

The evidence provided in this quantitative study reveals that a number of factors promote the oral skills of heritage language communication, including practical applications (i.e., having family and friend) with whom one may converse with as well as resources that test the listening ability of the child (e.g., music and music). Identifying with one's heritage culture is also a key to promoting heritage language learning. Identifying with the national culture may discourage children from fully adopting their heritage language, particularly in learning writing skills. At the same time, formal or explicit instruction seems to be a key in advancing the child's skills.

Overall, the evidence seems to point toward access to resource as an integral factor in heritage language learning. While this likelihood may come as little surprise, the implication on poorer heritage language communities could have serious repercussions. Many communities that struggle with attaining wealth often encourage their children to adopt the national culture for the purposes of integrating into society in order to become productive citizens in their communities, which in turn allows those families to attain wealth. Moreover, children growing up outside of their heritage language will adopt their national culture in order to better fit into their community, and attain a sense of belonging. Alternatively, those families with wealth will have access to resources in order to learn both languages without such a strong need to change in order to fit into the community.

This study is a starting point for attempting more quantitative research on heritage language maintenance. The United States, in particular, has a long history of immigration and issues with how immigrants integrate into society. One ideal is integration without loss of heritage, to maintain the language and culture of one's family while being a part of a larger, multilingual community. In order to do that, we must understand what practices will allow for such a system to flourish. Speakers, resources, and the ability to feel pride in one's culture seem to be important aspects of that system.

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Appendix A: Survey

Demographics

What country do you live in?

What heritage language(s) does your family have? (Heritage languages are the first languages of the parents in a family.)

What is the national language? (The national language is the dominant language of the country that you live in. For example, in the United States, English is the dominant language; in China, Mandarin is the dominant language.)

How capable is your child at using heritage language(s)?

- Listening
  None at all _ _ _ _ _ _ Highly Capable
- Speaking
  None at all _ _ _ _ _ _ Highly Capable
- Reading
  None at all _ _ _ _ _ _ Highly Capable
- Writing
  None at all _ _ _ _ _ _ Highly Capable

How capable is your child at using the national language?

- Listening
  None at all _ _ _ _ _ _ Highly Capable
- Speaking
  None at all _ _ _ _ _ _ Highly Capable
- Reading
  None at all _ _ _ _ _ _ Highly Capable
- Writing
  None at all _ _ _ _ _ _ Highly Capable

How old is your child?

Was your child born in the country where you live now? If not, how old was the child when you moved here?

Are you the mother or the father?

How old are you?

Were you born in the country where you live now? If not, how old were you when you moved here?

How old is your spouse?

Was your spouse born in the country where you live now? If not, how old was your spouse when he/she moved here?

Comments

Strongly Disagree _ _ _ _ _ _ _ Strongly Agree

1) There are many people in our community that speak our heritage language.

2) The heritage language is valuable for my child's intellectual growth.

3) We regularly teach our child the heritage language at home.

4) It is important that my child identifies with the heritage culture.

5) We encourage our child to watch movies that are in the heritage language.

6) Our child usually uses the heritage language when talking to other children.

7) I correct my child when he makes mistakes speaking the heritage language.

8) I correct my child when he makes mistakes speaking the national language.

9) Our child hears us speaking both the national language and the heritage languages to each other.

10) My child identifies as a member of the country that we live in.

11) We read stories to our child in the heritage language.

12) The heritage language will help my child have a positive self-image.

13) Knowing the heritage language will help my child find a better job in the future.

14) Our child sometimes uses the national language when we ask him/her to use the heritage language.

15) My child can better understand the world by learning the heritage language.

16) Our child regularly attends classes to learn the heritage language.

17) The child needs to know the heritage language to communicate with some of our relatives.

18) We often explain a word in one language by using the other language.

19) We often use online resources to teach our child the heritage language.

20) My child identifies as a member of a heritage language culture.

21) In our family, sometimes it does not matter which language we are using.

22) We have many books in the heritage language for our child to read.

_____

23) What resources has your family used to teach your child the heritage language?

24) Which resources were the most effective?

25) Which resources were the least effective?

26) In your opinion, how does learning a heritage language affect your child?

27) Aside from possibly teaching the language, what have you done to promote the heritage culture?

28) Do you identify more closely with culture of the country that you live in or with your heritage language culture? Why do you think that is?

29) Are there certain words/topics that your family prefers to use one language instead of the other? (For example, one family might always say “bus” in English, even though the word exists in the family’s other language.) If so, what are some examples for your family?

Appendix B: Recruitment Announcement

One in five families in the United States speaks a language other than English in the home. Some of these families may find that maintaining that other language is a challenge; other families may find maintaining that other language to be easy.

I am requesting the participation of any bilingual families to complete the following survey about how language is perceived and used in the home of bilingual families. The goal of this research is to uncover what methods and practices help children develop their bilingual abilities, and to find out how these practices may be interrelated.

If you are 18 years of age or older and a parent in a bilingual family, please click on the following link to participate in this survey:

https://bsu.qualtrics.com/SE/?SID=SV_5BB6zzSiXXSL54N

Please feel free to share this link with any bilingual families that you know. The survey is completely anonymous.

Thank you!

J. Thomas McAlister

Appendix C: Consent Form

Study Title **Language Usage, Practices, and Policies among Heritage Language Learners**

Study Purpose and Rationale
The purpose of this study is to uncover what methods and practices help promote heritage language learning for children in bilingual families.

Inclusion/Exclusion Criteria
This study will include adults in bilingual families in which the child may be learning the languages of both parents. You should be either the mother or the father in the family. You must be 18 years of age or older.

Participation Procedures and Duration
You will respond to a 35-question survey that will take approximately 10-15 minutes to complete.

Data Anonymity
All data will be maintained as anonymous and no identifying information such as names will appear in any publication or presentation of the data.

Storage of Data and Data Retention Period
All data will be stored on a password-protected device for a period of 2 years.

Risks or Discomforts
There are no perceived risks for participating in this study.

Benefits
Participating in this study will give you an opportunity to reflect upon your own heritage language practices.

Voluntary Participation
Your participation in this study is completely voluntary and you are free to withdraw your permission at anytime for any reason without penalty or prejudice from the investigator. Please feel free to ask any questions of the investigator before signing this form and at any time during the study.

IRB Contact Information
For one's rights as a research subject, you may contact the following: For questions about your rights as a research subject, please contact the Director, Office of Research Integrity, Ball State University, Muncie, IN 47306, (765) 285-5070 or at irb@bsu.edu.

In lieu of a signature, completion of the survey will represent consent. Participants are not required to complete the survey in whole. However, incomplete surveys will not be used in the study.

Researcher Contact Information

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Appendix D: SPSS Analysis Charts

Chart 1. Means of Heritage Language Ability Score Sums and All Survey Items

Ranks

	Sum of Heritage Language Ability Ratings	N	Mean Rank
AllMean	4.00	1	1.00
	5.00	1	2.00
	6.00	2	11.50
	7.00	2	12.50
	9.00	1	4.50
	10.00	5	19.60
	11.00	2	20.75
	12.00	3	26.67
	13.00	2	20.25
	14.00	1	23.00
	16.00	4	20.00
	17.00	2	29.75
	18.00	4	22.50
	19.00	2	20.00
	20.00	6	22.17
	Total	38	

Test Statistics[a,b]

	AllMean
Chi-Square	12.660
df	14
Asymp. Sig.	.553

a. Kruskal Wallis Test
b. Grouping Variable: HLSumScore

Chart 2. Means of Listening Ability Score and All Survey Items

Ranks

	HLListen	N	Mean Rank
AllMean	No Ability	2	1.50
	Barely Capable	2	11.50
	Somewhat Capable	5	9.60
	Able to Use Well	10	17.60
	Native-like	19	25.84
	Total	38	

Test Statistics[a,b]

	AllMean
Chi-Square	16.765
df	4
Asymp. Sig.	.002

a. Kruskal Wallis Test
b. Grouping Variable: HLListen

Chart 3a. Pairwise Means of Listening Ability Scores (No Ability and Barely Able) and All Survey Items

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
AllMean	No Ability	2	1.50	3.00
	Barely Able	2	3.50	7.00
	Total	4		

Test Statistics[a]

	AllMean

Mann-Whitney U	.000
Wilcoxon W	3.000
Z	-1.549
Asymp. Sig. (2-tailed)	.121
Exact Sig. [2*(1-tailed Sig.)]	.333[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 3b. Pairwise Means of Listening Ability Scores (No Ability and Somewhat Able) and All Survey Items

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
AllMean	No Ability	2	1.50	3.00
	Somewhat Able	5	5.00	25.00
	Total	7		

Test Statistics[a]

	AllMean
Mann-Whitney U	.000
Wilcoxon W	3.000
Z	-1.954
Asymp. Sig. (2-tailed)	.051
Exact Sig. [2*(1-tailed Sig.)]	.095[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 3c. Pairwise Means of Listening Ability Scores (No Ability and Able to Use Well) and All Survey Items

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
AllMean	No Ability	2	1.50	3.00
	Able to Use Well	10	7.50	75.00
	Total	12		

Test Statistics[a]

	AllMean
Mann-Whitney U	.000
Wilcoxon W	3.000
Z	-2.152
Asymp. Sig. (2-tailed)	.031
Exact Sig. [2*(1-tailed Sig.)]	.030[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 3d. Pairwise Means of Listening Ability Scores (No Ability and Native-Like) and All Survey Items

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
AllMean	No Ability	2	1.50	3.00
	Native-Like	19	12.00	228.00
	Total	21		

Test Statistics[a]

	AllMean
Mann-Whitney U	.000
Wilcoxon W	3.000
Z	-2.281
Asymp. Sig. (2-tailed)	.023
Exact Sig. [2*(1-tailed Sig.)]	.010[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 3e. Pairwise Means of Listening Ability Scores (Barely Able and Somewhat Able) and All Survey Items

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
AllMean	Barely Able	2	4.00	8.00
	Somewhat Able	5	4.00	20.00
	Total	7		

Test Statistics[a]

	AllMean
Mann-Whitney U	5.000
Wilcoxon W	20.000
Z	.000
Asymp. Sig. (2-tailed)	1.000
Exact Sig. [2*(1-tailed Sig.)]	1.000[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 3f. Pairwise Means of Listening Ability Scores (Barely Able and Able to Use Well) and All Survey Items

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
AllMean	Barely Able	2	4.50	9.00
	Able to Use Well	10	6.90	69.00
	Total	12		

Test Statistics[a]

	AllMean
Mann-Whitney U	6.000
Wilcoxon W	9.000
Z	-.861
Asymp. Sig. (2-tailed)	.389
Exact Sig. [2*(1-tailed Sig.)]	.485[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 3g. Pairwise Means of Listening Ability Scores (Barely Able and Native-Like) and All Survey Items

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
AllMean	Barely Able	2	4.00	8.00
	Native-Like	19	11.74	223.00
	Total	21		

Test Statistics[a]

	AllMean
Mann-Whitney U	5.000
Wilcoxon W	8.000
Z	-1.681
Asymp. Sig. (2-tailed)	.093
Exact Sig. [2*(1-tailed Sig.)]	.114[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 3h. Pairwise Means of Listening Ability Scores (Somewhat Able and Able to Use Well) and All Survey Items

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
AllMean	Somewhat Able	5	5.00	25.00
	Able to Use Well	10	9.50	95.00
	Total	15		

Test Statistics[a]

	AllMean
Mann-Whitney U	10.000
Wilcoxon W	25.000
Z	-1.840
Asymp. Sig. (2-tailed)	.066
Exact Sig. [2*(1-tailed Sig.)]	.075[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 3i. Pairwise Means of Listening Ability Scores (Somewhat Able and Native-Like) and All Survey Items

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
AllMean	Somewhat Able	5	4.60	23.00
	Native-Like	19	14.58	277.00
	Total	24		

Test Statistics[a]

	AllMean
Mann-Whitney U	8.000
Wilcoxon W	23.000
Z	-2.812
Asymp. Sig. (2-tailed)	.005

Exact Sig. [2*(1-tailed Sig.)]	.003[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 3j. Pairwise Means of Listening Ability Scores (Able to Use Well and Native-Like) and All Survey Items

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
AllMean	Able to Use Well	10	10.20	102.00
	Native-Like	19	17.53	333.00
	Total	29		

Test Statistics[a]

	AllMean
Mann-Whitney U	47.000
Wilcoxon W	102.000
Z	-2.207
Asymp. Sig. (2-tailed)	.027
Exact Sig. [2*(1-tailed Sig.)]	.027[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 4. Means of Speaking Ability Score and All Survey Items

Ranks

	HLSpeak	N	Mean Rank
AllMean	No Ability	1	1.00
	Barely Capable	5	10.00
	Somewhat Capable	5	13.10

	Able to Use Well	10	19.75
	Native-like	17	25.12
	Total	38	

Test Statistics[a,b]

	AllMean
Chi-Square	12.457
df	4
Asymp. Sig.	.014

a. Kruskal Wallis Test
b. Grouping Variable: HLSpeak

Chart 5a. Pairwise Means of Speaking Ability Score (No Ability and Barely Capable) and All Survey Items

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
AllMean	No Ability	1	1.00	1.00
	Barely Capable	5	4.00	20.00
	Total	6		

Test Statistics[a]

	AllMean
Mann-Whitney U	.000
Wilcoxon W	1.000
Z	-1.485
Asymp. Sig. (2-tailed)	.137
Exact Sig. [2*(1-tailed Sig.)]	.333[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 5b. Pairwise Means of Speaking Ability Score (No Ability and Somewhat Capable) and All Survey Items

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
AllMean	No Ability	1	1.00	1.00
	Somewhat Capable	5	4.00	20.00
	Total	6		

Test Statistics[a]

	AllMean
Mann-Whitney U	.000
Wilcoxon W	1.000
Z	-1.464
Asymp. Sig. (2-tailed)	.143
Exact Sig. [2*(1-tailed Sig.)]	.333[b]

a. Grouping Variable: HLSpeak

b. Not corrected for ties.

Chart 5c. Pairwise Means of Speaking Ability Score (No Ability and Able to Use Well) and All Survey Items

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
AllMean	No Ability	1	1.00	1.00
	Able to Use Well	10	6.50	65.00
	Total	11		

Test Statistics[a]

	AllMean

Mann-Whitney U	.000
Wilcoxon W	1.000
Z	-1.585
Asymp. Sig. (2-tailed)	.113
Exact Sig. [2*(1-tailed Sig.)]	.182[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 5d. Pairwise Means of Speaking Ability Score (No Ability and Native-Like) and All Survey Items

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
AllMean	No Ability	1	1.00	1.00
	Native-Like	17	10.00	170.00
	Total	18		

Test Statistics[a]

	AllMean
Mann-Whitney U	.000
Wilcoxon W	1.000
Z	-1.643
Asymp. Sig. (2-tailed)	.100
Exact Sig. [2*(1-tailed Sig.)]	.111[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 5e. Pairwise Means of Speaking Ability Score (Barely Capable and Somewhat Capable) and All Survey Items

Ranks

HLSpeak	N	Mean Rank	Sum of Ranks

AllMean	Barely Capable	5	5.40	27.00
	Somewhat Capable	5	5.60	28.00
	Total	10		

Test Statistics[a]

	AllMean
Mann-Whitney U	12.000
Wilcoxon W	27.000
Z	-.105
Asymp. Sig. (2-tailed)	.917
Exact Sig. [2*(1-tailed Sig.)]	1.000[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 5f. Pairwise Means of Speaking Ability Score (Barely Capable and Able to Use Well) and All Survey Items

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
AllMean	Barely Capable	5	4.80	24.00
	Able to Use Well	10	9.60	96.00
	Total	15		

Test Statistics[a]

	AllMean
Mann-Whitney U	9.000
Wilcoxon W	24.000
Z	-1.963
Asymp. Sig. (2-tailed)	.050

Exact Sig. [2*(1-tailed Sig.)]	.055[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 5g. Pairwise Means of Speaking Ability Score (Barely Capable and Native-Like) and All Survey Items

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
AllMean	Barely Capable	5	4.80	24.00
	Native-Like	17	13.47	229.00
	Total	22		

Test Statistics[a]

	AllMean
Mann-Whitney U	9.000
Wilcoxon W	24.000
Z	-2.630
Asymp. Sig. (2-tailed)	.009
Exact Sig. [2*(1-tailed Sig.)]	.006[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 5h. Pairwise Means of Speaking Ability Score (Somewhat Capable and Able to Use Well) and All Survey Items

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
AllMean	Somewhat Capable	5	5.20	26.00
	Able to Use Well	10	9.40	94.00

	Total	15		

Test Statistics[a]

	AllMean
Mann-Whitney U	11.000
Wilcoxon W	26.000
Z	-1.716
Asymp. Sig. (2-tailed)	.086
Exact Sig. [2*(1-tailed Sig.)]	.099[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 5i. Pairwise Means of Speaking Ability Score (Somewhat Capable and Native-Like) and All Survey Items

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
AllMean	Somewhat Capable	5	7.30	36.50
	Native-Like	17	12.74	216.50
	Total	22		

Test Statistics[a]

	AllMean
Mann-Whitney U	21.500
Wilcoxon W	36.500
Z	-1.649
Asymp. Sig. (2-tailed)	.099
Exact Sig. [2*(1-tailed Sig.)]	.101[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 5j. Pairwise Means of Speaking Ability Score (Able to Use Well and Native-Like) and All Survey Items

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
AllMean	Able to Use Well	10	10.75	107.50
	Native-Like	17	15.91	270.50
	Total	27		

Test Statistics[a]

	AllMean
Mann-Whitney U	52.500
Wilcoxon W	107.500
Z	-1.636
Asymp. Sig. (2-tailed)	.102
Exact Sig. [2*(1-tailed Sig.)]	.103[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 6. Means of Reading Ability Score and All Survey Items

Ranks

	HLRead	N	Mean Rank
AllMean	No Ability	13	18.19
	Barely Capable	3	9.50
	Somewhat Capable	5	21.60
	Able to Use Well	9	21.67
	Native-like	8	21.63

	Total	38	

Test Statistics[a,b]

	AllMean
Chi-Square	3.429
df	4
Asymp. Sig.	.489

a. Kruskal Wallis Test
b. Grouping Variable: HLRead

Chart 7. Means of Writing Ability Score and All Survey Items

Ranks

	HLWrite	N	Mean Rank
AllMean	No Ability	14	18.00
	Barely Capable	4	13.38
	Somewhat Capable	5	25.40
	Able to Use Well	9	19.50
	Native-like	6	22.17
	Total	38	

Test Statistics[a,b]

	AllMean
Chi-Square	3.231
df	4
Asymp. Sig.	.520

a. Kruskal Wallis Test

b. Grouping Variable:
HLWrite

Chart 8. Means of Heritage Language Ability Score Sums and Attitude-Related Items

Ranks

	HLSumScore	N	Mean Rank
At1_s2	4.00	1	27.00
	5.00	1	3.00
	6.00	2	18.75
	7.00	2	18.75
	9.00	1	10.50
	10.00	5	14.10
	11.00	2	18.75
	12.00	3	21.50
	13.00	2	27.00
	14.00	1	3.00
	16.00	4	22.88
	17.00	2	27.00
	18.00	4	16.88
	19.00	2	27.00
	20.00	6	21.50
	Total	38	
At2_s12	4.00	1	14.00
	5.00	1	3.50
	6.00	2	16.50
	7.00	2	14.00
	9.00	1	14.00
	10.00	5	23.30
	11.00	2	8.75
	12.00	3	24.33
	13.00	2	21.75
	14.00	1	14.00
	16.00	4	12.00
	17.00	2	29.50

	18.00	4	19.88
	19.00	2	29.50
	20.00	6	23.08
	Total	38	
At3_s13	4.00	1	13.50
	5.00	1	4.50
	6.00	2	16.50
	7.00	2	28.50
	9.00	1	1.00
	10.00	5	25.50
	11.00	2	18.25
	12.00	3	15.50
	13.00	2	9.00
	14.00	1	13.50
	16.00	4	15.00
	17.00	2	28.50
	18.00	4	15.00
	19.00	2	28.50
	20.00	6	26.00
	Total	38	
At4_s15	4.00	1	14.00
	5.00	1	7.00
	6.00	2	17.00
	7.00	2	18.00
	9.00	1	14.00
	10.00	5	23.00
	11.00	2	21.50
	12.00	3	24.00
	13.00	2	18.00
	14.00	1	14.00
	16.00	4	8.50
	17.00	2	29.00
	18.00	4	18.50
	19.00	2	15.50
	20.00	6	26.50
	Total	38	
AtMean	4.00	1	20.00
	5.00	1	2.00

6.00	2	17.50
7.00	2	21.00
9.00	1	4.50
10.00	5	24.10
11.00	2	15.25
12.00	3	22.17
13.00	2	17.75
14.00	1	10.50
16.00	4	8.50
17.00	2	33.00
18.00	4	16.00
19.00	2	21.75
20.00	6	27.75
Total	38	

Test Statistics[a,b]

	At1_s2	At2_s12	At3_s13	At4_s15	AtMean
Chi-Square	13.642	14.348	19.552	13.265	17.658
df	14	14	14	14	14
Asymp. Sig.	.477	.424	.145	.506	.223

a. Kruskal Wallis Test
b. Grouping Variable: HLSumScore

Chart 8. Means of Listening Ability and Attitude-Related Items

Ranks

	HLListen	N	Mean Rank
At1_s2	No Ability	2	15.00
	Barely Capable	2	18.75
	Somewhat Capable	5	12.30

	Able to Use Well	10	18.90
	Native-Like	19	22.26
	Total	38	
At2_s12	No Ability	2	8.75
	Barely Capable	2	16.50
	Somewhat Capable	5	14.00
	Able to Use Well	10	15.25
	Native-Like	19	24.63
	Total	38	
At3_s13	No Ability	2	9.00
	Barely Capable	2	16.50
	Somewhat Capable	5	20.70
	Able to Use Well	10	14.95
	Native-Like	19	23.00
	Total	38	
At4_s15	No Ability	2	10.50
	Barely Capable	2	17.00
	Somewhat Capable	5	15.60
	Able to Use Well	10	18.30
	Native-Like	19	22.37
	Total	38	
AtMean	No Ability	2	11.00
	Barely Capable	2	17.50

	Somewhat Capable	5	15.90
	Able to Use Well	10	15.10
	Native-Like	19	23.87
	Total	38	

Test Statistics[a,b]

	At1_s2	At2_s12	At3_s13	At4_s15	AtMean
Chi-Square	4.800	10.265	6.666	4.012	6.472
df	4	4	4	4	4
Asymp. Sig.	.308	.036	.155	.404	.167

a. Kruskal Wallis Test
b. Grouping Variable: HLListen

Chart 9a. Pairwise Means of Listening Ability and Attitude-Related Items (No Ability and Barely Capable)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
At2_s12	No Ability	2	2.25	4.50
	Barely Capable	2	2.75	5.50
	Total	4		

Test Statistics[a]

	At2_s12
Mann-Whitney U	1.500
Wilcoxon W	4.500
Z	-.408
Asymp. Sig. (2-tailed)	.683

Exact Sig. [2*(1-tailed Sig.)]	.667[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 9b. Pairwise Means of Listening Ability and Attitude-Related Items (No Ability and Somewhat Capable)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
At2_s12	No Ability	2	2.75	5.50
	Somewhat Capable	5	4.50	22.50
	Total	7		

Test Statistics[a]

	At2_s12
Mann-Whitney U	2.500
Wilcoxon W	5.500
Z	-1.581
Asymp. Sig. (2-tailed)	.114
Exact Sig. [2*(1-tailed Sig.)]	.381[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 9c. Pairwise Means of Listening Ability and Attitude-Related Items (No Ability and Able to Use Well)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
At2_s12	No Ability	2	5.00	10.00

	Able to Use Well	10	6.80	68.00
	Total	12		

Test Statistics[a]

	At2_s12
Mann-Whitney U	7.000
Wilcoxon W	10.000
Z	-.679
Asymp. Sig. (2-tailed)	.497
Exact Sig. [2*(1-tailed Sig.)]	.606[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 9d. Pairwise Means of Listening Ability and Attitude-Related Items (No Ability and Native-Like)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
At2_s12	No Ability	2	3.25	6.50
	Native-Like	19	11.82	224.50
	Total	21		

Test Statistics[a]

	At2_s12
Mann-Whitney U	3.500
Wilcoxon W	6.500
Z	-2.224
Asymp. Sig. (2-tailed)	.026
Exact Sig. [2*(1-tailed Sig.)]	.057[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 9e. Pairwise Means of Listening Ability and Attitude-Related Items (Barely Capable and Somewhat Capable)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
At2_s12	Barely Capable	2	4.00	8.00
	Somewhat Capable	5	4.00	20.00
	Total	7		

Test Statistics[a]

	At2_s12
Mann-Whitney U	5.000
Wilcoxon W	20.000
Z	.000
Asymp. Sig. (2-tailed)	1.000
Exact Sig. [2*(1-tailed Sig.)]	1.000[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 9f. Pairwise Means of Listening Ability and Attitude-Related Items (Barely Capable and Able to Use Well)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
At2_s12	Barely Capable	2	6.75	13.50

	Able to Use Well	10	6.45	64.50
	Total	12		

Test Statistics[a]

	At2_s12
Mann-Whitney U	9.500
Wilcoxon W	64.500
Z	-.112
Asymp. Sig. (2-tailed)	.911
Exact Sig. [2*(1-tailed Sig.)]	.909[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 9g. Pairwise Means of Listening Ability and Attitude-Related Items (Barely Capable and Native-Like)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
At2_s12	Barely Capable	2	7.50	15.00
	Native-Like	19	11.37	216.00
	Total	21		

Test Statistics[a]

	At2_s12
Mann-Whitney U	12.000
Wilcoxon W	15.000
Z	-1.054
Asymp. Sig. (2-tailed)	.292

Exact Sig. [2*(1-tailed Sig.)]	.467[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 9h. Pairwise Means of Listening Ability and Attitude-Related Items (Somewhat Capable and Able to Use Well)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
At2_s12	Somewhat Capable	5	8.00	40.00
	Able to Use Well	10	8.00	80.00
	Total	15		

Test Statistics[a]

	At2_s12
Mann-Whitney U	25.000
Wilcoxon W	80.000
Z	.000
Asymp. Sig. (2-tailed)	1.000
Exact Sig. [2*(1-tailed Sig.)]	1.000[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 9i. Pairwise Means of Listening Ability and Attitude-Related Items (Somewhat Capable and Native-Like)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks

At2_s12	Somewhat Capable	5	6.50	32.50
	Native-Like	19	14.08	267.50
	Total	24		

Test Statistics[a]

	At2_s12
Mann-Whitney U	17.500
Wilcoxon W	32.500
Z	-2.438
Asymp. Sig. (2-tailed)	.015
Exact Sig. [2*(1-tailed Sig.)]	.030[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 9j. Pairwise Means of Listening Ability and Attitude-Related Items (Able to Use Well and Native-Like)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
At2_s12	Able to Use Well	10	10.50	105.00
	Native-Like	19	17.37	330.00
	Total	29		

Test Statistics[a]

	At2_s12
Mann-Whitney U	50.000
Wilcoxon W	105.000
Z	-2.331

Asymp. Sig. (2-tailed)	.020
Exact Sig. [2*(1-tailed Sig.)]	.040[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 10. Means of Speaking Ability and Attitude-Related Items

Ranks

	HLSpeak	N	Mean Rank
At1_s2	No Ability	1	27.00
	Barely Capable	5	15.60
	Somewhat Capable	5	12.30
	Able to Use Well	10	18.90
	Native-Like	17	22.68
	Total	38	
At2_s12	No Ability	1	14.00
	Barely Capable	5	12.90
	Somewhat Capable	5	17.10
	Able to Use Well	10	15.25
	Native-Like	17	24.97
	Total	38	
At3_s13	No Ability	1	13.50
	Barely Capable	5	18.90
	Somewhat Capable	5	15.20
	Able to Use Well	10	15.65
	Native-Like	17	23.56
	Total	38	

At4_s15	No Ability	1	14.00
	Barely Capable	5	15.40
	Somewhat Capable	5	17.00
	Able to Use Well	10	18.30
	Native-Like	17	22.47
	Total	38	
AtMean	No Ability	1	20.00
	Barely Capable	5	15.80
	Somewhat Capable	5	15.00
	Able to Use Well	10	15.70
	Native-Like	17	24.12
	Total	38	

Test Statistics[a,b]

	At1_s2	At2_s12	At3_s13	At4_s15	AtMean
Chi-Square	6.051	9.173	5.432	2.952	5.663
df	4	4	4	4	4
Asymp. Sig.	.195	.057	.246	.566	.226

a. Kruskal Wallis Test
b. Grouping Variable: HLSpeak

Chart 11. Means of Reading Ability and Attitude-Related Items

Ranks

	HLRead	N	Mean Rank
At1_s2	No Ability	13	18.23
	Barely Capable	3	13.50

	Somewhat Capable	5	18.90
	Able to Use Well	9	20.67
	Native-Like	8	22.88
	Total	38	
At2_s12	No Ability	13	19.54
	Barely Capable	3	10.50
	Somewhat Capable	5	20.20
	Able to Use Well	9	17.44
	Native-Like	8	24.69
	Total	38	
At3_s13	No Ability	13	18.81
	Barely Capable	3	23.50
	Somewhat Capable	5	12.90
	Able to Use Well	9	16.50
	Native-Like	8	26.63
	Total	38	
At4_s15	No Ability	13	20.31
	Barely Capable	3	19.00
	Somewhat Capable	5	13.20
	Able to Use Well	9	18.22
	Native-Like	8	23.75
	Total	38	
AtMean	No Ability	13	20.27

	Barely Capable	3	16.83
	Somewhat Capable	5	12.70
	Able to Use Well	9	17.06
	Native-Like	8	26.25
	Total	38	

Test Statistics[a,b]

	At1_s2	At2_s12	At3_s13	At4_s15	AtMean
Chi-Square	2.500	4.735	7.383	3.494	5.677
df	4	4	4	4	4
Asymp. Sig.	.645	.316	.117	.479	.225

a. Kruskal Wallis Test
b. Grouping Variable: HLRead

Chart 10. Means of Writing Ability and Attitude-Related Items

Ranks

	HLWrite	N	Mean Rank
At1_s2	No Ability	14	18.86
	Barely Capable	4	16.88
	Somewhat Capable	5	18.90
	Able to Use Well	9	20.67
	Native-Like	6	21.50
	Total	38	
At2_s12	No Ability	14	18.39
	Barely Capable	4	17.88

	Somewhat Capable	5	23.30
	Able to Use Well	9	17.44
	Native-Like	6	23.08
	Total	38	
At3_s13	No Ability	14	19.50
	Barely Capable	4	15.00
	Somewhat Capable	5	20.70
	Able to Use Well	9	16.50
	Native-Like	6	26.00
	Total	38	
At4_s15	No Ability	14	20.93
	Barely Capable	4	16.00
	Somewhat Capable	5	17.60
	Able to Use Well	9	15.22
	Native-Like	6	26.50
	Total	38	
AtMean	No Ability	14	20.25
	Barely Capable	4	16.50
	Somewhat Capable	5	18.80
	Able to Use Well	9	14.56
	Native-Like	6	27.75
	Total	38	

Test Statistics[a,b]

	At1_s2	At2_s12	At3_s13	At4_s15	AtMean
Chi-Square	.762	2.041	4.111	5.279	5.646
df	4	4	4	4	4
Asymp. Sig.	.943	.728	.391	.260	.227

a. Kruskal Wallis Test
b. Grouping Variable: HLWrite

Chart 12. Means of Heritage Language Ability Score Sums and Identity-Related Items

Ranks

	HLSumScore	N	Mean Rank
Id1_s4	4.00	1	5.50
	5.00	1	5.50
	6.00	2	22.00
	7.00	2	14.50
	9.00	1	14.50
	10.00	5	23.90
	11.00	2	22.00
	12.00	3	21.50
	13.00	2	14.50
	14.00	1	14.50
	16.00	4	16.00
	17.00	2	29.50
	18.00	4	19.75
	19.00	2	22.00
	20.00	6	20.83
	Total	38	
Id2_s10	4.00	1	3.50
	5.00	1	30.00
	6.00	2	30.00
	7.00	2	23.25

	9.00	1	30.00
	10.00	5	15.40
	11.00	2	23.25
	12.00	3	25.50
	13.00	2	11.25
	14.00	1	16.50
	16.00	4	23.25
	17.00	2	30.00
	18.00	4	13.00
	19.00	2	23.25
	20.00	6	13.42
	Total	38	
Id3_s17	4.00	1	26.50
	5.00	1	2.00
	6.00	2	3.50
	7.00	2	26.50
	9.00	1	26.50
	10.00	5	20.30
	11.00	2	26.50
	12.00	3	13.67
	13.00	2	26.50
	14.00	1	26.50
	16.00	4	13.63
	17.00	2	26.50
	18.00	4	22.63
	19.00	2	16.25
	20.00	6	20.08
	Total	38	
Id4_20	4.00	1	5.50
	5.00	1	9.50
	6.00	2	2.00
	7.00	2	15.50
	9.00	1	5.50
	10.00	5	22.30
	11.00	2	21.50
	12.00	3	17.50
	13.00	2	17.75
	14.00	1	21.50

	16.00	4	15.50
	17.00	2	27.25
	18.00	4	27.25
	19.00	2	14.00
	20.00	6	28.00
	Total	38	
IdMean	4.00	1	5.00
	5.00	1	5.00
	6.00	2	4.50
	7.00	2	21.00
	9.00	1	13.50
	10.00	5	21.90
	11.00	2	28.00
	12.00	3	21.17
	13.00	2	15.75
	14.00	1	23.50
	16.00	4	16.38
	17.00	2	34.50
	18.00	4	23.00
	19.00	2	19.50
	20.00	6	19.50
	Total	38	

Test Statistics[a,b]

	Id1_s4	Id2_s10	Id3_s17	Id4_20	IdMean
Chi-Square	8.941	16.235	18.154	18.301	13.714
df	14	14	14	14	14
Asymp. Sig.	.835	.299	.200	.193	.471

a. Kruskal Wallis Test

b. Grouping Variable: HLSumScore

Chart 13. Means of Listening Ability and Identity-Related Items

Ranks

	HLListen	N	Mean Rank
Id1_s4	1.00	2	5.50
	2.00	2	22.00
	3.00	5	13.10
	4.00	10	18.10
	5.00	19	23.13
	Total	38	
Id2_s10	1.00	2	16.75
	2.00	2	30.00
	3.00	5	16.80
	4.00	10	20.15
	5.00	19	19.05
	Total	38	
Id3_s17	1.00	2	14.25
	2.00	2	3.50
	3.00	5	15.70
	4.00	10	23.40
	5.00	19	20.68
	Total	38	
Id4_20	1.00	2	7.50
	2.00	2	2.00
	3.00	5	10.60
	4.00	10	19.05
	5.00	19	25.18
	Total	38	
IdMean	1.00	2	5.00
	2.00	2	4.50
	3.00	5	11.50
	4.00	10	20.80
	5.00	19	24.03
	Total	38	

Test Statistics[a,b]

	Id1_s4	Id2_s10	Id3_s17	Id4_20	IdMean
Chi-Square	8.293	2.546	8.931	16.477	13.074

df	4	4	4	4	4
Asymp. Sig.	.081	.636	.063	.002	.011

a. Kruskal Wallis Test
b. Grouping Variable: HLListen

Chart 14a. Pairwise Means of Listening Ability and Identity-Related Items (No Ability and Barely Capable)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Id3_s17	1.00	2	3.00	6.00
	2.00	2	2.00	4.00
	Total	4		
Id4_20	1.00	2	3.50	7.00
	2.00	2	1.50	3.00
	Total	4		
IdMean	1.00	2	2.50	5.00
	2.00	2	2.50	5.00
	Total	4		

Test Statistics[a]

	Id3_s17	Id4_20	IdMean
Mann-Whitney U	1.000	.000	2.000
Wilcoxon W	4.000	3.000	5.000
Z	-.775	-1.549	.000
Asymp. Sig. (2-tailed)	.439	.121	1.000
Exact Sig. [2*(1-tailed Sig.)]	.667[b]	.333[b]	1.000[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 14b. Pairwise Means of Listening Ability and Identity-Related Items (No Ability and Somewhat Capable)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Id3_s17	1.00	2	3.50	7.00
	3.00	5	4.20	21.00
	Total	7		
Id4_20	1.00	2	3.25	6.50
	3.00	5	4.30	21.50
	Total	7		
IdMean	1.00	2	3.00	6.00
	3.00	5	4.40	22.00
	Total	7		

Test Statistics[a]

	Id3_s17	Id4_20	IdMean
Mann-Whitney U	4.000	3.500	3.000
Wilcoxon W	7.000	6.500	6.000
Z	-.406	-.641	-.804
Asymp. Sig. (2-tailed)	.685	.522	.421
Exact Sig. [2*(1-tailed Sig.)]	.857[b]	.571[b]	.571[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 14c. Pairwise Means of Listening Ability and Identity-Related Items (No Ability and Able to Use Well)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks

Id3_s17	1.00	2	4.50	9.00
	4.00	10	6.90	69.00
	Total	12		
Id4_20	1.00	2	2.75	5.50
	4.00	10	7.25	72.50
	Total	12		
IdMean	1.00	2	1.50	3.00
	4.00	10	7.50	75.00
	Total	12		

Test Statistics[a]

	Id3_s17	Id4_20	IdMean
Mann-Whitney U	6.000	2.500	.000
Wilcoxon W	9.000	5.500	3.000
Z	-1.131	-1.658	-2.171
Asymp. Sig. (2-tailed)	.258	.097	.030
Exact Sig. [2*(1-tailed Sig.)]	.485[b]	.121[b]	.030[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 14d. Pairwise Means of Listening Ability and Identity-Related Items (No Ability and Native-Like)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Id3_s17	1.00	2	7.75	15.50
	5.00	19	11.34	215.50
	Total	21		
Id4_20	1.00	2	2.50	5.00
	5.00	19	11.89	226.00
	Total	21		

IdMean	1.00	2	2.50	5.00
	5.00	19	11.89	226.00
	Total	21		

Test Statistics[a]

	Id3_s17	Id4_20	IdMean
Mann-Whitney U	12.500	2.000	2.000
Wilcoxon W	15.500	5.000	5.000
Z	-.930	-2.165	-2.060
Asymp. Sig. (2-tailed)	.352	.030	.039
Exact Sig. [2*(1-tailed Sig.)]	.467[b]	.038[b]	.038[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 14e. Pairwise Means of Listening Ability and Identity-Related Items (Barely Capable and Somewhat Capable)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Id3_s17	2.00	2	2.00	4.00
	3.00	5	4.80	24.00
	Total	7		
Id4_20	2.00	2	1.75	3.50
	3.00	5	4.90	24.50
	Total	7		
IdMean	2.00	2	2.75	5.50
	3.00	5	4.50	22.50
	Total	7		

Test Statistics[a]

	Id3_s17	Id4_20	IdMean
Mann-Whitney U	1.000	.500	2.500
Wilcoxon W	4.000	3.500	5.500
Z	-1.578	-1.826	-.977
Asymp. Sig. (2-tailed)	.115	.068	.329
Exact Sig. [2*(1-tailed Sig.)]	.190[b]	.095[b]	.381[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 14f. Pairwise Means of Listening Ability and Identity-Related Items (Barely Capable and Able to Use Well)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Id3_s17	2.00	2	1.50	3.00
	4.00	10	7.50	75.00
	Total	12		
Id4_20	2.00	2	1.50	3.00
	4.00	10	7.50	75.00
	Total	12		
IdMean	2.00	2	1.50	3.00
	4.00	10	7.50	75.00
	Total	12		

Test Statistics[a]

	Id3_s17	Id4_20	IdMean
Mann-Whitney U	.000	.000	.000
Wilcoxon W	3.000	3.000	3.000
Z	-2.563	-2.195	-2.167
Asymp. Sig. (2-tailed)	.010	.028	.030
Exact Sig. [2*(1-tailed Sig.)]	.030[b]	.030[b]	.030[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 14g. Pairwise Means of Listening Ability and Identity-Related Items (Barely Capable and Native-Like)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Id3_s17	2.00	2	2.50	5.00
	5.00	19	11.89	226.00
	Total	21		
Id4_20	2.00	2	1.75	3.50
	5.00	19	11.97	227.50
	Total	21		
IdMean	2.00	2	2.25	4.50
	5.00	19	11.92	226.50
	Total	21		

Test Statistics[a]

	Id3_s17	Id4_20	IdMean
Mann-Whitney U	2.000	.500	1.500
Wilcoxon W	5.000	3.500	4.500
Z	-2.339	-2.357	-2.120
Asymp. Sig. (2-tailed)	.019	.018	.034
Exact Sig. [2*(1-tailed Sig.)]	.038[b]	.010[b]	.019[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 14h. Pairwise Means of Listening Ability and Identity-Related Items (Somewhat Capable and Able to Use Well)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Id3_s17	3.00	5	5.80	29.00
	4.00	10	9.10	91.00
	Total	15		
Id4_20	3.00	5	5.40	27.00
	4.00	10	9.30	93.00
	Total	15		
IdMean	3.00	5	5.00	25.00
	4.00	10	9.50	95.00
	Total	15		

Test Statistics[a]

	Id3_s17	Id4_20	IdMean
Mann-Whitney U	14.000	12.000	10.000
Wilcoxon W	29.000	27.000	25.000
Z	-1.625	-1.654	-1.857
Asymp. Sig. (2-tailed)	.104	.098	.063
Exact Sig. [2*(1-tailed Sig.)]	.206[b]	.129[b]	.075[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 14i. Pairwise Means of Listening Ability and Identity-Related Items (Somewhat Capable and Native-Like)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Id3_s17	3.00	5	9.90	49.50
	5.00	19	13.18	250.50
	Total	24		
Id4_20	3.00	5	5.00	25.00
	5.00	19	14.47	275.00

	Total	24		
IdMean	3.00	5	6.60	33.00
	5.00	19	14.05	267.00
	Total	24		

Test Statistics[a]

	Id3_s17	Id4_20	IdMean
Mann-Whitney U	34.500	10.000	18.000
Wilcoxon W	49.500	25.000	33.000
Z	-1.069	-2.796	-2.114
Asymp. Sig. (2-tailed)	.285	.005	.035
Exact Sig. [2*(1-tailed Sig.)]	.367[b]	.005[b]	.036[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 14j. Pairwise Means of Listening Ability and Identity-Related Items (Able to Use Well and Native-Like)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Id3_s17	4.00	10	16.40	164.00
	5.00	19	14.26	271.00
	Total	29		
Id4_20	4.00	10	11.50	115.00
	5.00	19	16.84	320.00
	Total	29		
IdMean	4.00	10	12.80	128.00
	5.00	19	16.16	307.00
	Total	29		

Test Statistics[a]

	Id3_s17	Id4_20	IdMean
Mann-Whitney U	81.000	60.000	73.000
Wilcoxon W	271.000	115.000	128.000
Z	-.819	-1.702	-1.020
Asymp. Sig. (2-tailed)	.413	.089	.308
Exact Sig. [2*(1-tailed Sig.)]	.542[b]	.115[b]	.330[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 15. Means of Speaking Ability and Identity-Related Items

Ranks

	HLSpeak	N	Mean Rank
Id1_s4	1.00	1	5.50
	2.00	5	15.70
	3.00	5	16.10
	4.00	10	18.10
	5.00	17	23.26
	Total	38	
Id2_s10	1.00	1	3.50
	2.00	5	27.30
	3.00	5	19.50
	4.00	10	18.80
	5.00	17	18.56
	Total	38	
Id3_s17	1.00	1	26.50
	2.00	5	12.40
	3.00	5	15.70
	4.00	10	23.40
	5.00	17	20.00
	Total	38	
Id4_20	1.00	1	5.50
	2.00	5	8.90
	3.00	5	12.10

	4.00	10	20.65
	5.00	17	24.94
	Total	38	
IdMean	1.00	1	5.00
	2.00	5	11.20
	3.00	5	13.10
	4.00	10	21.80
	5.00	17	23.32
	Total	38	

Test Statistics[a,b]

	Id1_s4	Id2_s10	Id3_s17	Id4_20	IdMean
Chi-Square	5.531	5.273	5.782	13.338	8.687
df	4	4	4	4	4
Asymp. Sig.	.237	.260	.216	.010	.069

a. Kruskal Wallis Test
b. Grouping Variable: HLSpeak

Chart 16a. Pairwise Means of Speaking Ability and Identity-Related Items (No Ability and Barely Capable)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
Id4_20	1.00	1	3.00	3.00
	2.00	5	3.60	18.00
	Total	6		

Test Statistics[a]

	Id4_20
Mann-Whitney U	2.000
Wilcoxon W	3.000
Z	-.297
Asymp. Sig. (2-tailed)	.766

Exact Sig. [2*(1-tailed Sig.)]	1.000[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 16b. Pairwise Means of Speaking Ability and Identity-Related Items (No Ability and Somewhat Capable)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
Id4_20	1.00	1	2.50	2.50
	3.00	5	3.70	18.50
	Total	6		

Test Statistics[a]

	Id4_20
Mann-Whitney U	1.500
Wilcoxon W	2.500
Z	-.603
Asymp. Sig. (2-tailed)	.546
Exact Sig. [2*(1-tailed Sig.)]	.667[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 16c. Pairwise Means of Speaking Ability and Identity-Related Items (No Ability and Able to Use Well)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
Id4_20	1.00	1	1.00	1.00
	4.00	10	6.50	65.00

	Total	11		

Test Statistics[a]

	Id4_20
Mann-Whitney U	.000
Wilcoxon W	1.000
Z	-1.667
Asymp. Sig. (2-tailed)	.096
Exact Sig. [2*(1-tailed Sig.)]	.182[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 16d. Pairwise Means of Speaking Ability and Identity-Related Items (No Ability and Native-Like)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
Id4_20	1.00	1	2.00	2.00
	5.00	17	9.94	169.00
	Total	18		

Test Statistics[a]

	Id4_20
Mann-Whitney U	1.000
Wilcoxon W	2.000
Z	-1.544
Asymp. Sig. (2-tailed)	.122
Exact Sig. [2*(1-tailed Sig.)]	.222[b]

a. Grouping Variable: HLSpeak

b. Not corrected for ties.

Chart 16e. Pairwise Means of Speaking Ability and Identity-Related Items (Barely Capable and Somewhat Capable)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
Id4_20	2.00	5	5.10	25.50
	3.00	5	5.90	29.50
	Total	10		

Test Statistics[a]

	Id4_20
Mann-Whitney U	10.500
Wilcoxon W	25.500
Z	-.432
Asymp. Sig. (2-tailed)	.665
Exact Sig. [2*(1-tailed Sig.)]	.690[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 16f. Pairwise Means of Speaking Ability and Identity-Related Items (Barely Capable and Able to Use Well)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
Id4_20	2.00	5	4.50	22.50
	4.00	10	9.75	97.50
	Total	15		

Test Statistics[a]

	Id4_20
Mann-Whitney U	7.500
Wilcoxon W	22.500
Z	-2.237
Asymp. Sig. (2-tailed)	.025
Exact Sig. [2*(1-tailed Sig.)]	.028[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 16g. Pairwise Means of Speaking Ability and Identity-Related Items (Barely Capable and Native-Like)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
Id4_20	2.00	5	4.70	23.50
	5.00	17	13.50	229.50
	Total	22		

Test Statistics[a]

	Id4_20
Mann-Whitney U	8.500
Wilcoxon W	23.500
Z	-2.778
Asymp. Sig. (2-tailed)	.005
Exact Sig. [2*(1-tailed Sig.)]	.005[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 16h. Pairwise Means of Speaking Ability and Identity-Related Items (Somewhat Capable and Able to Use Well)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
Id4_20	3.00	5	5.20	26.00
	4.00	10	9.40	94.00
	Total	15		

Test Statistics[a]

	Id4_20
Mann-Whitney U	11.000
Wilcoxon W	26.000
Z	-1.769
Asymp. Sig. (2-tailed)	.077
Exact Sig. [2*(1-tailed Sig.)]	.099[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 16i. Pairwise Means of Speaking Ability and Identity-Related Items (Somewhat Capable and Native-Like)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
Id4_20	3.00	5	6.30	31.50
	5.00	17	13.03	221.50
	Total	22		

Test Statistics[a]

	Id4_20
Mann-Whitney U	16.500
Wilcoxon W	31.500

Z	-2.134
Asymp. Sig. (2-tailed)	.033
Exact Sig. [2*(1-tailed Sig.)]	.039[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 16j. Pairwise Means of Speaking Ability and Identity-Related Items (Able to Use Well and Native-Like)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
Id4_20	4.00	10	11.50	115.00
	5.00	17	15.47	263.00
	Total	27		

Test Statistics[a]

	Id4_20
Mann-Whitney U	60.000
Wilcoxon W	115.000
Z	-1.337
Asymp. Sig. (2-tailed)	.181
Exact Sig. [2*(1-tailed Sig.)]	.223[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 17. Means of Reading Ability and Identity-Related Items

Ranks

	HLRead	N	Mean Rank
Id1_s4	1.00	13	20.04
	2.00	3	20.17
	3.00	5	15.70
	4.00	9	19.17
	5.00	8	21.13
	Total	38	
Id2_s10	1.00	13	23.27
	2.00	3	12.50
	3.00	5	19.80
	4.00	9	19.44
	5.00	8	15.88
	Total	38	
Id3_s17	1.00	13	19.88
	2.00	3	16.17
	3.00	5	17.80
	4.00	9	21.33
	5.00	8	19.13
	Total	38	
Id4_20	1.00	13	16.85
	2.00	3	11.33
	3.00	5	17.60
	4.00	9	22.67
	5.00	8	24.50
	Total	38	
IdMean	1.00	13	19.65
	2.00	3	13.50
	3.00	5	17.20
	4.00	9	22.56
	5.00	8	19.50
	Total	38	

Test Statistics[a,b]

	Id1_s4	Id2_s10	Id3_s17	Id4_20	IdMean
Chi-Square	.938	3.974	.885	5.169	1.792

df	4	4	4	4	4
Asymp. Sig.	.919	.409	.927	.270	.774

a. Kruskal Wallis Test
b. Grouping Variable: HLRead

Chart 18. Means of Writing Ability and Identity-Related Items

Ranks

	HLWrite	N	Mean Rank
Id1_s4	1.00	14	20.71
	2.00	4	15.00
	3.00	5	21.70
	4.00	9	17.50
	5.00	6	20.83
	Total	38	
Id2_s10	1.00	14	23.75
	2.00	4	7.50
	3.00	5	27.30
	4.00	9	17.94
	5.00	6	13.42
	Total	38	
Id3_s17	1.00	14	20.36
	2.00	4	18.75
	3.00	5	17.80
	4.00	9	19.06
	5.00	6	20.08
	Total	38	
Id4_20	1.00	14	17.18
	2.00	4	12.00
	3.00	5	21.40
	4.00	9	19.72
	5.00	6	28.00
	Total	38	
IdMean	1.00	14	20.57
	2.00	4	9.88
	3.00	5	24.70

4.00	9	19.22
5.00	6	19.50
Total	38	

Test Statistics[a,b]

	Id1_s4	Id2_s10	Id3_s17	Id4_20	IdMean
Chi-Square	1.627	12.514	.336	6.483	4.279
df	4	4	4	4	4
Asymp. Sig.	.804	.014	.987	.166	.370

a. Kruskal Wallis Test
b. Grouping Variable: HLWrite

Chart 19a. Pairwise Means of Writing Ability and Identity-Related Items (No Ability and Barely Capable)

Ranks

	HLWrite	N	Mean Rank	Sum of Ranks
Id2_s10	1.00	14	11.11	155.50
	2.00	4	3.88	15.50
	Total	18		

Test Statistics[a]

	Id2_s10
Mann-Whitney U	5.500
Wilcoxon W	15.500
Z	-2.569
Asymp. Sig. (2-tailed)	.010
Exact Sig. [2*(1-tailed Sig.)]	.012[b]

a. Grouping Variable: HLWrite
b. Not corrected for ties.

Chart 19b. Pairwise Means of Writing Ability and Identity-Related Items (No Ability and Somewhat Capable)

Ranks

	HLWrite	N	Mean Rank	Sum of Ranks
Id2_s10	1.00	14	9.54	133.50
	3.00	5	11.30	56.50
	Total	19		

Test Statistics[a]

	Id2_s10
Mann-Whitney U	28.500
Wilcoxon W	133.500
Z	-.734
Asymp. Sig. (2-tailed)	.463
Exact Sig. [2*(1-tailed Sig.)]	.559[b]

a. Grouping Variable: HLWrite
b. Not corrected for ties.

Chart 19c. Pairwise Means of Writing Ability and Identity-Related Items (No Ability and Able to Use Well)

Ranks

	HLWrite	N	Mean Rank	Sum of Ranks
Id2_s10	1.00	14	13.68	191.50
	4.00	9	9.39	84.50
	Total	23		

Test Statistics[a]

	Id2_s10
Mann-Whitney U	39.500
Wilcoxon W	84.500

Z	-1.608
Asymp. Sig. (2-tailed)	.108
Exact Sig. [2*(1-tailed Sig.)]	.141[b]

a. Grouping Variable: HLWrite
b. Not corrected for ties.

Chart 19d. Pairwise Means of Writing Ability and Identity-Related Items (No Ability and Native-Like)

Ranks

	HLWrite	N	Mean Rank	Sum of Ranks
Id2_s10	1.00	14	11.93	167.00
	5.00	6	7.17	43.00
	Total	20		

Test Statistics[a]

	Id2_s10
Mann-Whitney U	22.000
Wilcoxon W	43.000
Z	-1.811
Asymp. Sig. (2-tailed)	.070
Exact Sig. [2*(1-tailed Sig.)]	.109[b]

a. Grouping Variable: HLWrite
b. Not corrected for ties.

Chart 19e. Pairwise Means of Writing Ability and Identity-Related Items (Barely Capable and Somewhat Capable)

Ranks

	HLWrite	N	Mean Rank	Sum of Ranks

Id2_s10	2.00	4	2.63	10.50
	3.00	5	6.90	34.50
	Total	9		

Test Statistics[a]

	Id2_s10
Mann-Whitney U	.500
Wilcoxon W	10.500
Z	-2.453
Asymp. Sig. (2-tailed)	.014
Exact Sig. [2*(1-tailed Sig.)]	.016[b]

a. Grouping Variable: HLWrite
b. Not corrected for ties.

Chart 19f. Pairwise Means of Writing Ability and Identity-Related Items (Barely Capable and Able to Use Well)

Ranks

	HLWrite	N	Mean Rank	Sum of Ranks
Id2_s10	2.00	4	3.63	14.50
	4.00	9	8.50	76.50
	Total	13		

Test Statistics[a]

	Id2_s10
Mann-Whitney U	4.500
Wilcoxon W	14.500
Z	-2.201
Asymp. Sig. (2-tailed)	.028
Exact Sig. [2*(1-tailed Sig.)]	.034[b]

a. Grouping Variable: HLWrite
b. Not corrected for ties.

Chart 19g. Pairwise Means of Writing Ability and Identity-Related Items (Barely Capable and Native-Like)

Ranks

	HLWrite	N	Mean Rank	Sum of Ranks
Id2_s10	2.00	4	4.88	19.50
	5.00	6	5.92	35.50
	Total	10		

Test Statistics[a]

	Id2_s10
Mann-Whitney U	9.500
Wilcoxon W	19.500
Z	-.543
Asymp. Sig. (2-tailed)	.587
Exact Sig. [2*(1-tailed Sig.)]	.610[b]

a. Grouping Variable: HLWrite
b. Not corrected for ties.

Chart 19h. Pairwise Means of Writing Ability and Identity-Related Items (Somewhat Capable and Able to Use Well)

Ranks

	HLWrite	N	Mean Rank	Sum of Ranks
Id2_s10	3.00	5	10.30	51.50
	4.00	9	5.94	53.50
	Total	14		

Test Statistics[a]

	Id2_s10
Mann-Whitney U	8.500
Wilcoxon W	53.500
Z	-2.032
Asymp. Sig. (2-tailed)	.042
Exact Sig. [2*(1-tailed Sig.)]	.060[b]

a. Grouping Variable: HLWrite
b. Not corrected for ties.

Chart 19i. Pairwise Means of Writing Ability and Identity-Related Items (Somewhat Capable and Native-Like)

Ranks

	HLWrite	N	Mean Rank	Sum of Ranks
Id2_s10	3.00	5	7.80	39.00
	5.00	6	4.50	27.00
	Total	11		

Test Statistics[a]

	Id2_s10
Mann-Whitney U	6.000
Wilcoxon W	27.000
Z	-1.792
Asymp. Sig. (2-tailed)	.073
Exact Sig. [2*(1-tailed Sig.)]	.126[b]

a. Grouping Variable: HLWrite
b. Not corrected for ties.

Chart 19j. Pairwise Means of Writing Ability and Identity-Related Items (Able to Use Well and Native-Like)

Ranks

	HLWrite	N	Mean Rank	Sum of Ranks
Id2_s10	4.00	9	9.11	82.00
	5.00	6	6.33	38.00
	Total	15		

Test Statistics[a]

	Id2_s10
Mann-Whitney U	17.000
Wilcoxon W	38.000
Z	-1.216
Asymp. Sig. (2-tailed)	.224
Exact Sig. [2*(1-tailed Sig.)]	.272[b]

a. Grouping Variable: HLWrite
b. Not corrected for ties.

Chart 20. Means of Heritage Language Ability Score Sums and Resource-Related Items

Ranks

	HLSumScore	N	Mean Rank
Re1_s5	4.00	1	5.00
	5.00	1	1.50
	6.00	2	18.50
	7.00	2	16.50
	9.00	1	1.50
	10.00	5	22.40
	11.00	2	19.50
	12.00	3	25.00
	13.00	2	16.75
	14.00	1	16.50

	16.00	4	19.13
	17.00	2	24.25
	18.00	4	18.88
	19.00	2	18.50
	20.00	6	24.92
	Total	38	
Re2_s11	4.00	1	3.00
	5.00	1	3.00
	6.00	2	18.00
	7.00	2	14.00
	9.00	1	3.00
	10.00	5	24.40
	11.00	2	28.50
	12.00	3	27.67
	13.00	2	14.75
	14.00	1	12.50
	16.00	4	22.25
	17.00	2	25.00
	18.00	4	16.50
	19.00	2	16.00
	20.00	6	21.17
	Total	38	
Re3_s16	4.00	1	7.50
	5.00	1	7.50
	6.00	2	13.50
	7.00	2	7.50
	9.00	1	7.50
	10.00	5	14.70
	11.00	2	27.75
	12.00	3	25.00
	13.00	2	7.50
	14.00	1	37.50
	16.00	4	29.25
	17.00	2	24.50
	18.00	4	27.63
	19.00	2	26.75
	20.00	6	15.00

	Total	38	
Re4_s19	4.00	1	3.50
	5.00	1	11.00
	6.00	2	7.25
	7.00	2	14.25
	9.00	1	3.50
	10.00	5	22.10
	11.00	2	20.50
	12.00	3	23.50
	13.00	2	23.00
	14.00	1	30.00
	16.00	4	15.50
	17.00	2	18.00
	18.00	4	22.75
	19.00	2	20.50
	20.00	6	25.33
	Total	38	
Re5_s22	4.00	1	1.50
	5.00	1	17.00
	6.00	2	5.50
	7.00	2	16.00
	9.00	1	5.50
	10.00	5	18.20
	11.00	2	21.75
	12.00	3	28.67
	13.00	2	26.50
	14.00	1	9.50
	16.00	4	21.75
	17.00	2	22.00
	18.00	4	17.88
	19.00	2	20.00
	20.00	6	24.75
	Total	38	
ReMean	4.00	1	2.00
	5.00	1	5.50
	6.00	2	7.00
	7.00	2	9.75

9.00	1	2.00
10.00	5	20.30
11.00	2	26.25
12.00	3	28.17
13.00	2	16.25
14.00	1	23.00
16.00	4	21.75
17.00	2	22.75
18.00	4	20.88
19.00	2	21.50
20.00	6	24.17
Total	38	

Test Statistics[a,b]

	Re1_s5	Re2_s11	Re3_s16	Re4_s19	Re5_s22	ReMean
Chi-Square	10.766	13.726	23.262	12.271	13.762	15.048
df	14	14	14	14	14	14
Asymp. Sig.	.704	.470	.056	.585	.468	.375

a. Kruskal Wallis Test

b. Grouping Variable: HLSumScore

Chart 21. Means of Listening Ability and Resource-Related Items

Ranks

	HLListen	N	Mean Rank
Re1_s5	1.00	2	3.25
	2.00	2	18.50
	3.00	5	12.00
	4.00	10	18.25
	5.00	19	23.95
	Total	38	
Re2_s11	1.00	2	3.00
	2.00	2	18.00

	3.00	5	15.40
	4.00	10	20.00
	5.00	19	22.21
	Total	38	
Re3_s16	1.00	2	7.50
	2.00	2	13.50
	3.00	5	13.60
	4.00	10	20.40
	5.00	19	22.47
	Total	38	
Re4_s19	1.00	2	7.25
	2.00	2	7.25
	3.00	5	12.10
	4.00	10	20.20
	5.00	19	23.66
	Total	38	
Re5_s22	1.00	2	9.25
	2.00	2	5.50
	3.00	5	16.60
	4.00	10	19.50
	5.00	19	22.82
	Total	38	
ReMean	1.00	2	3.75
	2.00	2	7.00
	3.00	5	10.90
	4.00	10	19.45
	5.00	19	24.76
	Total	38	

Test Statistics[a,b]

	Re1_s5	Re2_s11	Re3_s16	Re4_s19	Re5_s22	ReMean
Chi-Square	10.273	6.544	6.194	10.045	7.244	13.854
df	4	4	4	4	4	4
Asymp. Sig.	.036	.162	.185	.040	.124	.008

a. Kruskal Wallis Test

b. Grouping Variable: HLListen

Chart 22a. Pairwise Means of Listening Ability and Resource-Related Items (No Ability and Barely Capable)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Re1_s5	1.00	2	1.75	3.50
	2.00	2	3.25	6.50
	Total	4		
Re4_s19	1.00	2	2.50	5.00
	2.00	2	2.50	5.00
	Total	4		
ReMean	1.00	2	2.00	4.00
	2.00	2	3.00	6.00
	Total	4		

Test Statistics[a]

	Re1_s5	Re4_s19	ReMean
Mann-Whitney U	.500	2.000	1.000
Wilcoxon W	3.500	5.000	4.000
Z	-1.225	.000	-.775
Asymp. Sig. (2-tailed)	.221	1.000	.439
Exact Sig. [2*(1-tailed Sig.)]	.333[b]	1.000[b]	.667[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 22b. Pairwise Means of Listening Ability and Resource-Related Items (No Ability and Somewhat Capable)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Re1_s5	1.00	2	1.75	3.50
	3.00	5	4.90	24.50
	Total	7		
Re4_s19	1.00	2	2.75	5.50
	3.00	5	4.50	22.50
	Total	7		
ReMean	1.00	2	1.50	3.00
	3.00	5	5.00	25.00
	Total	7		

Test Statistics[a]

	Re1_s5	Re4_s19	ReMean
Mann-Whitney U	.500	2.500	.000
Wilcoxon W	3.500	5.500	3.000
Z	-1.791	-1.025	-1.954
Asymp. Sig. (2-tailed)	.073	.306	.051
Exact Sig. [2*(1-tailed Sig.)]	.095[b]	.381[b]	.095[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 22c. Pairwise Means of Listening Ability and Resource-Related Items (No Ability and Able to Use Well)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Re1_s5	1.00	2	2.25	4.50
	4.00	10	7.35	73.50
	Total	12		
Re4_s19	1.00	2	3.25	6.50
	4.00	10	7.15	71.50

	Total	12		
ReMean	1.00	2	2.25	4.50
	4.00	10	7.35	73.50
	Total	12		

Test Statistics[a]

	Re1_s5	Re4_s19	ReMean
Mann-Whitney U	1.500	3.500	1.500
Wilcoxon W	4.500	6.500	4.500
Z	-1.859	-1.414	-1.839
Asymp. Sig. (2-tailed)	.063	.157	.066
Exact Sig. [2*(1-tailed Sig.)]	.061[b]	.182[b]	.061[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 22d. Pairwise Means of Listening Ability and Resource-Related Items (No Ability and Native-Like)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Re1_s5	1.00	2	2.00	4.00
	5.00	19	11.95	227.00
	Total	21		
Re4_s19	1.00	2	3.25	6.50
	5.00	19	11.82	224.50
	Total	21		
ReMean	1.00	2	2.50	5.00
	5.00	19	11.89	226.00
	Total	21		

Test Statistics[a]

	Re1_s5	Re4_s19	ReMean
Mann-Whitney U	1.000	3.500	2.000
Wilcoxon W	4.000	6.500	5.000
Z	-2.292	-1.888	-2.043
Asymp. Sig. (2-tailed)	.022	.059	.041
Exact Sig. [2*(1-tailed Sig.)]	.019[b]	.057[b]	.038[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 22e. Pairwise Means of Listening Ability and Resource-Related Items (Barely Capable and Somewhat Capable)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Re1_s5	2.00	2	4.25	8.50
	3.00	5	3.90	19.50
	Total	7		
Re4_s19	2.00	2	2.75	5.50
	3.00	5	4.50	22.50
	Total	7		
ReMean	2.00	2	2.50	5.00
	3.00	5	4.60	23.00
	Total	7		

Test Statistics[a]

	Re1_s5	Re4_s19	ReMean
Mann-Whitney U	4.500	2.500	2.000
Wilcoxon W	19.500	5.500	5.000
Z	-.199	-1.025	-1.172
Asymp. Sig. (2-tailed)	.842	.306	.241
Exact Sig. [2*(1-tailed Sig.)]	.857[b]	.381[b]	.381[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 22f. Pairwise Means of Listening Ability and Resource-Related Items (Barely Capable and Able to Use Well)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Re1_s5	2.00	2	6.50	13.00
	4.00	10	6.50	65.00
	Total	12		
Re4_s19	2.00	2	3.25	6.50
	4.00	10	7.15	71.50
	Total	12		
ReMean	2.00	2	2.50	5.00
	4.00	10	7.30	73.00
	Total	12		

Test Statistics[a]

	Re1_s5	Re4_s19	ReMean
Mann-Whitney U	10.000	3.500	2.000
Wilcoxon W	65.000	6.500	5.000
Z	.000	-1.414	-1.728
Asymp. Sig. (2-tailed)	1.000	.157	.084
Exact Sig. [2*(1-tailed Sig.)]	1.000[b]	.182[b]	.121[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 22g. Pairwise Means of Listening Ability and Resource-Related Items (Barely Capable and Native-Like)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Re1_s5	2.00	2	9.00	18.00
	5.00	19	11.21	213.00
	Total	21		
Re4_s19	2.00	2	3.25	6.50
	5.00	19	11.82	224.50
	Total	21		
ReMean	2.00	2	3.50	7.00
	5.00	19	11.79	224.00
	Total	21		

Test Statistics[a]

	Re1_s5	Re4_s19	ReMean
Mann-Whitney U	15.000	3.500	4.000
Wilcoxon W	18.000	6.500	7.000
Z	-.520	-1.888	-1.802
Asymp. Sig. (2-tailed)	.603	.059	.072
Exact Sig. [2*(1-tailed Sig.)]	.686[b]	.057[b]	.086[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 22h. Pairwise Means of Listening Ability and Resource-Related Items (Somewhat Capable and Able to Use Well)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Re1_s5	3.00	5	6.00	30.00
	4.00	10	9.00	90.00
	Total	15		
Re4_s19	3.00	5	5.60	28.00
	4.00	10	9.20	92.00

	Total	15		
ReMean	3.00	5	4.40	22.00
	4.00	10	9.80	98.00
	Total	15		

Test Statistics[a]

	Re1_s5	Re4_s19	ReMean
Mann-Whitney U	15.000	13.000	7.000
Wilcoxon W	30.000	28.000	22.000
Z	-1.258	-1.488	-2.212
Asymp. Sig. (2-tailed)	.208	.137	.027
Exact Sig. [2*(1-tailed Sig.)]	.254[b]	.165[b]	.028[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 22i. Pairwise Means of Listening Ability and Resource-Related Items (Somewhat Capable and Native-Like)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Re1_s5	3.00	5	6.20	31.00
	5.00	19	14.16	269.00
	Total	24		
Re4_s19	3.00	5	6.50	32.50
	5.00	19	14.08	267.50
	Total	24		
ReMean	3.00	5	5.90	29.50
	5.00	19	14.24	270.50
	Total	24		

Test Statistics[a]

	Re1_s5	Re4_s19	ReMean
Mann-Whitney U	16.000	17.500	14.500
Wilcoxon W	31.000	32.500	29.500
Z	-2.340	-2.165	-2.351
Asymp. Sig. (2-tailed)	.019	.030	.019
Exact Sig. [2*(1-tailed Sig.)]	.024[b]	.030[b]	.015[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 22j. Pairwise Means of Listening Ability and Resource-Related Items (Able to Use Well and Native-Like)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Re1_s5	4.00	10	11.90	119.00
	5.00	19	16.63	316.00
	Total	29		
Re4_s19	4.00	10	13.20	132.00
	5.00	19	15.95	303.00
	Total	29		
ReMean	4.00	10	11.50	115.00
	5.00	19	16.84	320.00
	Total	29		

Test Statistics[a]

	Re1_s5	Re4_s19	ReMean
Mann-Whitney U	64.000	77.000	60.000
Wilcoxon W	119.000	132.000	115.000
Z	-1.485	-.837	-1.611
Asymp. Sig. (2-tailed)	.138	.403	.107

Exact Sig. [2*(1-tailed Sig.)]	.164[b]	.429[b]	.115[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 23. Means of Speaking Ability and Resource-Related Items

Ranks

	HLSpeak	N	Mean Rank
Re1_s5	1.00	1	5.00
	2.00	5	14.30
	3.00	5	12.10
	4.00	10	19.75
	5.00	17	23.91
	Total	38	
Re2_s11	1.00	1	3.00
	2.00	5	13.40
	3.00	5	15.20
	4.00	10	22.10
	5.00	17	22.00
	Total	38	
Re3_s16	1.00	1	7.50
	2.00	5	9.90
	3.00	5	16.00
	4.00	10	22.25
	5.00	17	22.44
	Total	38	
Re4_s19	1.00	1	3.50
	2.00	5	10.80
	3.00	5	14.20
	4.00	10	22.85
	5.00	17	22.59
	Total	38	
Re5_s22	1.00	1	1.50
	2.00	5	12.00
	3.00	5	14.70

	4.00	10	21.60
	5.00	17	22.94
	Total	38	
ReMean	1.00	1	2.00
	2.00	5	7.80
	3.00	5	13.30
	4.00	10	22.20
	5.00	17	24.21
	Total	38	

Test Statistics[a,b]

	Re1_s5	Re2_s11	Re3_s16	Re4_s19	Re5_s22	ReMean
Chi-Square	8.121	6.117	7.752	8.729	8.202	13.265
df	4	4	4	4	4	4
Asymp. Sig.	.087	.191	.101	.068	.084	.010

a. Kruskal Wallis Test

b. Grouping Variable: HLSpeak

Chart 24a. Pairwise Means of Speaking Ability and Resource-Related Items (No Ability and Barely Capable)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
ReMean	1.00	1	1.00	1.00
	2.00	5	4.00	20.00
	Total	6		

Test Statistics[a]

	ReMean
Mann-Whitney U	.000
Wilcoxon W	1.000
Z	-1.464

Asymp. Sig. (2-tailed)	.143
Exact Sig. [2*(1-tailed Sig.)]	.333[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 24b. Pairwise Means of Speaking Ability and Resource-Related Items (No Ability and Somewhat Capable)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
ReMean	1.00	1	1.50	1.50
	3.00	5	3.90	19.50
	Total	6		

Test Statistics[a]

	ReMean
Mann-Whitney U	.500
Wilcoxon W	1.500
Z	-1.188
Asymp. Sig. (2-tailed)	.235
Exact Sig. [2*(1-tailed Sig.)]	.333[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 24c. Pairwise Means of Speaking Ability and Resource-Related Items (No Ability and Able to Use Well)

Ranks

HLSpeak	N	Mean Rank	Sum of Ranks

ReMean	1.00	1	1.00	1.00
	4.00	10	6.50	65.00
	Total	11		

Test Statistics[a]

	ReMean
Mann-Whitney U	.000
Wilcoxon W	1.000
Z	-1.592
Asymp. Sig. (2-tailed)	.111
Exact Sig. [2*(1-tailed Sig.)]	.182[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 24d. Pairwise Means of Speaking Ability and Resource-Related Items (No Ability and Native-Like)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
ReMean	1.00	1	1.50	1.50
	5.00	17	9.97	169.50
	Total	18		

Test Statistics[a]

	ReMean
Mann-Whitney U	.500
Wilcoxon W	1.500
Z	-1.548
Asymp. Sig. (2-tailed)	.122
Exact Sig. [2*(1-tailed Sig.)]	.111[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 24e. Pairwise Means of Speaking Ability and Resource-Related Items (Barely Capable and Somewhat Capable)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
ReMean	2.00	5	4.70	23.50
	3.00	5	6.30	31.50
	Total	10		

Test Statistics[a]

	ReMean
Mann-Whitney U	8.500
Wilcoxon W	23.500
Z	-.838
Asymp. Sig. (2-tailed)	.402
Exact Sig. [2*(1-tailed Sig.)]	.421[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 24f. Pairwise Means of Speaking Ability and Resource-Related Items (Barely Capable and Able to Use Well)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
ReMean	2.00	5	3.00	15.00
	4.00	10	10.50	105.00
	Total	15		

Test Statistics[a]

	ReMean
Mann-Whitney U	.000
Wilcoxon W	15.000
Z	-3.070
Asymp. Sig. (2-tailed)	.002
Exact Sig. [2*(1-tailed Sig.)]	.001[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 24g. Pairwise Means of Speaking Ability and Resource-Related Items (Barely Capable and Native-Like)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
ReMean	2.00	5	5.10	25.50
	5.00	17	13.38	227.50
	Total	22		

Test Statistics[a]

	ReMean
Mann-Whitney U	10.500
Wilcoxon W	25.500
Z	-2.513
Asymp. Sig. (2-tailed)	.012
Exact Sig. [2*(1-tailed Sig.)]	.009[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 24h. Pairwise Means of Speaking Ability and Resource-Related Items (Somewhat Capable and Able to Use Well)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
ReMean	3.00	5	5.10	25.50
	4.00	10	9.45	94.50
	Total	15		

Test Statistics[a]

	ReMean
Mann-Whitney U	10.500
Wilcoxon W	25.500
Z	-1.782
Asymp. Sig. (2-tailed)	.075
Exact Sig. [2*(1-tailed Sig.)]	.075[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 24i. Pairwise Means of Speaking Ability and Resource-Related Items (Somewhat Capable and Native-Like)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
ReMean	3.00	5	7.00	35.00
	5.00	17	12.82	218.00
	Total	22		

Test Statistics[a]

	ReMean
Mann-Whitney U	20.000
Wilcoxon W	35.000
Z	-1.767
Asymp. Sig. (2-tailed)	.077

Exact Sig. [2*(1-tailed Sig.)]	.085[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 24j. Pairwise Means of Speaking Ability and Resource-Related Items (Able to Use Well and Native-Like)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
ReMean	4.00	10	12.25	122.50
	5.00	17	15.03	255.50
	Total	27		

Test Statistics[a]

	ReMean
Mann-Whitney U	67.500
Wilcoxon W	122.500
Z	-.882
Asymp. Sig. (2-tailed)	.378
Exact Sig. [2*(1-tailed Sig.)]	.386[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 25. Means of Reading Ability and Resource-Related Items

Ranks

	HLRead	N	Mean Rank
Re1_s5	1.00	13	19.58
	2.00	3	12.83
	3.00	5	18.60
	4.00	9	18.72

	5.00	8	23.31
	Total	38	
Re2_s11	1.00	13	19.46
	2.00	3	21.67
	3.00	5	18.40
	4.00	9	19.11
	5.00	8	19.88
	Total	38	
Re3_s16	1.00	13	14.31
	2.00	3	18.83
	3.00	5	21.60
	4.00	9	27.44
	5.00	8	17.94
	Total	38	
Re4_s19	1.00	13	18.46
	2.00	3	8.50
	3.00	5	20.90
	4.00	9	19.78
	5.00	8	24.13
	Total	38	
Re5_s22	1.00	13	16.88
	2.00	3	17.00
	3.00	5	19.30
	4.00	9	20.61
	5.00	8	23.56
	Total	38	
ReMean	1.00	13	17.19
	2.00	3	13.83
	3.00	5	19.70
	4.00	9	21.06
	5.00	8	23.50
	Total	38	

Test Statistics[a,b]

	Re1_s5	Re2_s11	Re3_s16	Re4_s19	Re5_s22	ReMean

Chi-Square	2.214	.191	8.386	4.647	2.132	2.564
df	4	4	4	4	4	4
Asymp. Sig.	.697	.996	.078	.325	.712	.633

a. Kruskal Wallis Test

b. Grouping Variable: HLRead

Chart 26. Means of Writing Ability and Resource-Related Items

Ranks

	HLWrite	N	Mean Rank
Re1_s5	1.00	14	19.79
	2.00	4	12.38
	3.00	5	21.60
	4.00	9	17.44
	5.00	6	24.92
	Total	38	
Re2_s11	1.00	14	20.43
	2.00	4	15.38
	3.00	5	22.50
	4.00	9	17.11
	5.00	6	21.17
	Total	38	
Re3_s16	1.00	14	15.39
	2.00	4	10.50
	3.00	5	28.40
	4.00	9	27.94
	5.00	6	15.00
	Total	38	
Re4_s19	1.00	14	17.93
	2.00	4	15.13
	3.00	5	18.90
	4.00	9	20.33
	5.00	6	25.33
	Total	38	
Re5_s22	1.00	14	16.89

	2.00	4	21.75
	3.00	5	17.50
	4.00	9	20.17
	5.00	6	24.75
	Total	38	
ReMean	1.00	14	17.61
	2.00	4	12.75
	3.00	5	22.30
	4.00	9	20.78
	5.00	6	24.17
	Total	38	

Test Statistics[a,b]

	Re1_s5	Re2_s11	Re3_s16	Re4_s19	Re5_s22	ReMean
Chi-Square	3.761	1.631	14.998	2.690	2.588	3.389
df	4	4	4	4	4	4
Asymp. Sig.	.439	.803	.005	.611	.629	.495

a. Kruskal Wallis Test

b. Grouping Variable: HLWrite

Chart 27a. Pairwise Means of Writing Ability and Resource-Related Items (No Ability and Barely Capable)

Ranks

	HLWrite	N	Mean Rank	Sum of Ranks
Re3_s16	1.00	14	10.11	141.50
	2.00	4	7.38	29.50
	Total	18		

Test Statistics[a]

	Re3_s16
Mann-Whitney U	19.500

Wilcoxon W	29.500
Z	-1.004
Asymp. Sig. (2-tailed)	.315
Exact Sig. [2*(1-tailed Sig.)]	.382[b]

a. Grouping Variable: HLWrite
b. Not corrected for ties.

Chart 27b. Pairwise Means of Writing Ability and Resource-Related Items (No Ability and Somewhat Capable)

Ranks

	HLWrite	N	Mean Rank	Sum of Ranks
Re3_s16	1.00	14	8.18	114.50
	3.00	5	15.10	75.50
	Total	19		

Test Statistics[a]

	Re3_s16
Mann-Whitney U	9.500
Wilcoxon W	114.500
Z	-2.456
Asymp. Sig. (2-tailed)	.014
Exact Sig. [2*(1-tailed Sig.)]	.014[b]

a. Grouping Variable: HLWrite
b. Not corrected for ties.

Chart 27c. Pairwise Means of Writing Ability and Resource-Related Items (No Ability and Able to Use Well)

Ranks

	HLWrite	N	Mean Rank	Sum of Ranks
Re3_s16	1.00	14	8.93	125.00
	4.00	9	16.78	151.00
	Total	23		

Test Statistics[a]

	Re3_s16
Mann-Whitney U	20.000
Wilcoxon W	125.000
Z	-2.816
Asymp. Sig. (2-tailed)	.005
Exact Sig. [2*(1-tailed Sig.)]	.005[b]

a. Grouping Variable: HLWrite
b. Not corrected for ties.

Chart 27d. Pairwise Means of Writing Ability and Resource-Related Items (No Ability and Native-Like)

Ranks

	HLWrite	N	Mean Rank	Sum of Ranks
Re3_s16	1.00	14	10.68	149.50
	5.00	6	10.08	60.50
	Total	20		

Test Statistics[a]

	Re3_s16
Mann-Whitney U	39.500
Wilcoxon W	60.500
Z	-.227
Asymp. Sig. (2-tailed)	.820

Exact Sig. [2*(1-tailed Sig.)]	.841[b]

a. Grouping Variable: HLWrite
b. Not corrected for ties.

Chart 27e. Pairwise Means of Writing Ability and Resource-Related Items (Barely Capable and Somewhat Capable)

Ranks

	HLWrite	N	Mean Rank	Sum of Ranks
Re3_s16	2.00	4	2.63	10.50
	3.00	5	6.90	34.50
	Total	9		

Test Statistics[a]

	Re3_s16
Mann-Whitney U	.500
Wilcoxon W	10.500
Z	-2.387
Asymp. Sig. (2-tailed)	.017
Exact Sig. [2*(1-tailed Sig.)]	.016[b]

a. Grouping Variable: HLWrite
b. Not corrected for ties.

Chart 27f. Pairwise Means of Writing Ability and Resource-Related Items (Barely Capable and Able to Use Well)

Ranks

	HLWrite	N	Mean Rank	Sum of Ranks
Re3_s16	2.00	4	3.00	12.00
	4.00	9	8.78	79.00
	Total	13		

Test Statistics[a]

	Re3_s16
Mann-Whitney U	2.000
Wilcoxon W	12.000
Z	-2.593
Asymp. Sig. (2-tailed)	.010
Exact Sig. [2*(1-tailed Sig.)]	.011[b]

a. Grouping Variable: HLWrite
b. Not corrected for ties.

Chart 27g. Pairwise Means of Writing Ability and Resource-Related Items (Barely Capable and Native-Like)

Ranks

	HLWrite	N	Mean Rank	Sum of Ranks
Re3_s16	2.00	4	5.00	20.00
	5.00	6	5.83	35.00
	Total	10		

Test Statistics[a]

	Re3_s16
Mann-Whitney U	10.000
Wilcoxon W	20.000
Z	-.525
Asymp. Sig. (2-tailed)	.600
Exact Sig. [2*(1-tailed Sig.)]	.762[b]

a. Grouping Variable: HLWrite
b. Not corrected for ties.

Chart 27h. Pairwise Means of Writing Ability and Resource-Related Items (Somewhat Capable and Able to Use Well)

Ranks

	HLWrite	N	Mean Rank	Sum of Ranks
Re3_s16	3.00	5	7.50	37.50
	4.00	9	7.50	67.50
	Total	14		

Test Statistics[a]

	Re3_s16
Mann-Whitney U	22.500
Wilcoxon W	67.500
Z	.000
Asymp. Sig. (2-tailed)	1.000
Exact Sig. [2*(1-tailed Sig.)]	1.000[b]

a. Grouping Variable: HLWrite
b. Not corrected for ties.

Chart 27i. Pairwise Means of Writing Ability and Resource-Related Items (Somewhat Capable and Native-Like)

Ranks

	HLWrite	N	Mean Rank	Sum of Ranks
Re3_s16	3.00	5	7.90	39.50
	5.00	6	4.42	26.50
	Total	11		

Test Statistics[a]

	Re3_s16

Mann-Whitney U	5.500
Wilcoxon W	26.500
Z	-1.784
Asymp. Sig. (2-tailed)	.074
Exact Sig. [2*(1-tailed Sig.)]	.082[b]

a. Grouping Variable: HLWrite
b. Not corrected for ties.

Chart 27j. Pairwise Means of Writing Ability and Resource-Related Items (Able to Use Well and Native-Like)

Ranks

	HLWrite	N	Mean Rank	Sum of Ranks
Re3_s16	4.00	9	9.89	89.00
	5.00	6	5.17	31.00
	Total	15		

Test Statistics[a]

	Re3_s16
Mann-Whitney U	10.000
Wilcoxon W	31.000
Z	-2.079
Asymp. Sig. (2-tailed)	.038
Exact Sig. [2*(1-tailed Sig.)]	.050[b]

a. Grouping Variable: HLWrite
b. Not corrected for ties.

Chart 28. Means of Heritage Language Ability Score Sums and Interaction-Related Items

Ranks

HLSumScore	N	Mean Rank

In1_s1	4.00	1	14.00
	5.00	1	5.00
	6.00	2	16.75
	7.00	2	17.25
	9.00	1	5.00
	10.00	5	20.50
	11.00	2	24.25
	12.00	3	15.83
	13.00	2	23.50
	14.00	1	34.50
	16.00	4	26.38
	17.00	2	21.25
	18.00	4	21.25
	19.00	2	24.50
	20.00	6	14.50
	Total	38	
In2_s6	4.00	1	5.50
	5.00	1	5.50
	6.00	2	10.75
	7.00	2	10.75
	9.00	1	5.50
	10.00	5	21.70
	11.00	2	16.00
	12.00	3	23.17
	13.00	2	16.00
	14.00	1	23.50
	16.00	4	18.63
	17.00	2	23.00
	18.00	4	25.88
	19.00	2	23.00
	20.00	6	24.33
	Total	38	
In3_s14	4.00	1	2.00
	5.00	1	33.00
	6.00	2	33.00
	7.00	2	22.50
	9.00	1	6.00

	10.00	5	21.60
	11.00	2	21.50
	12.00	3	18.00
	13.00	2	16.25
	14.00	1	33.00
	16.00	4	27.75
	17.00	2	13.25
	18.00	4	13.38
	19.00	2	12.50
	20.00	6	17.08
	Total	38	
In4_s21	4.00	1	2.00
	5.00	1	5.00
	6.00	2	29.00
	7.00	2	24.50
	9.00	1	23.50
	10.00	5	14.90
	11.00	2	14.25
	12.00	3	21.83
	13.00	2	17.00
	14.00	1	34.50
	16.00	4	20.25
	17.00	2	17.00
	18.00	4	24.00
	19.00	2	9.75
	20.00	6	22.67
	Total	38	
InMean	4.00	1	1.00
	5.00	1	6.50
	6.00	2	23.00
	7.00	2	16.00
	9.00	1	6.50
	10.00	5	18.60
	11.00	2	19.25
	12.00	3	18.67
	13.00	2	18.00
	14.00	1	35.50

16.00	4	27.63
17.00	2	19.00
18.00	4	23.00
19.00	2	17.25
20.00	6	19.17
Total	38	

Test Statistics[a,b]

	In1_s1	In2_s6	In3_s14	In4_s21	InMean
Chi-Square	10.359	11.706	16.378	13.156	10.765
df	14	14	14	14	14
Asymp. Sig.	.735	.630	.291	.514	.704

a. Kruskal Wallis Test
b. Grouping Variable: HLSumScore

Chart 29. Means of Listening Ability and Interaction-Related Items

Ranks

	HLListen	N	Mean Rank
In1_s1	1.00	2	9.50
	2.00	2	16.75
	3.00	5	16.60
	4.00	10	21.10
	5.00	19	20.76
	Total	38	
In2_s6	1.00	2	5.50
	2.00	2	10.75
	3.00	5	11.80
	4.00	10	15.70
	5.00	19	25.92
	Total	38	
In3_s14	1.00	2	17.50
	2.00	2	33.00
	3.00	5	17.70

	4.00	10	22.00
	5.00	19	17.45
	Total	38	
In4_s21	1.00	2	3.50
	2.00	2	29.00
	3.00	5	23.90
	4.00	10	17.15
	5.00	19	20.26
	Total	38	
InMean	1.00	2	3.75
	2.00	2	23.00
	3.00	5	14.00
	4.00	10	18.85
	5.00	19	22.58
	Total	38	

Test Statistics[a,b]

	In1_s1	In2_s6	In3_s14	In4_s21	InMean
Chi-Square	2.635	15.024	4.516	7.387	6.981
df	4	4	4	4	4
Asymp. Sig.	.621	.005	.341	.117	.137

a. Kruskal Wallis Test
b. Grouping Variable: HLListen

Chart 30a. Pairwise Means of Listening Ability and Interaction-Related Items (No Ability and Barely Capable)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
In2_s6	1.00	2	2.00	4.00
	2.00	2	3.00	6.00
	Total	4		

Test Statistics[a]

	In2_s6
Mann-Whitney U	1.000
Wilcoxon W	4.000
Z	-1.000
Asymp. Sig. (2-tailed)	.317
Exact Sig. [2*(1-tailed Sig.)]	.667[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 30b. Pairwise Means of Listening Ability and Interaction-Related Items (No Ability and Somewhat Capable)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
In2_s6	1.00	2	2.50	5.00
	3.00	5	4.60	23.00
	Total	7		

Test Statistics[a]

	In2_s6
Mann-Whitney U	2.000
Wilcoxon W	5.000
Z	-1.342
Asymp. Sig. (2-tailed)	.180
Exact Sig. [2*(1-tailed Sig.)]	.381[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 30c. Pairwise Means of Listening Ability and Interaction-Related Items (No Ability and Able to Use Well)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
In2_s6	1.00	2	3.50	7.00
	4.00	10	7.10	71.00
	Total	12		

Test Statistics[a]

	In2_s6
Mann-Whitney U	4.000
Wilcoxon W	7.000
Z	-1.387
Asymp. Sig. (2-tailed)	.165
Exact Sig. [2*(1-tailed Sig.)]	.273[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 30d. Pairwise Means of Listening Ability and Interaction-Related Items (No Ability and Native-Like)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
In2_s6	1.00	2	2.00	4.00
	5.00	19	11.95	227.00
	Total	21		

Test Statistics[a]

	In2_s6

Mann-Whitney U	1.000
Wilcoxon W	4.000
Z	-2.187
Asymp. Sig. (2-tailed)	.029
Exact Sig. [2*(1-tailed Sig.)]	.019[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 30e. Pairwise Means of Listening Ability and Interaction-Related Items (Barely Capable and Somewhat Capable)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
In2_s6	2.00	2	3.75	7.50
	3.00	5	4.10	20.50
	Total	7		

Test Statistics[a]

	In2_s6
Mann-Whitney U	4.500
Wilcoxon W	7.500
Z	-.224
Asymp. Sig. (2-tailed)	.823
Exact Sig. [2*(1-tailed Sig.)]	.857[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 30f. Pairwise Means of Listening Ability and Interaction-Related Items (Barely Capable and Able to Use Well)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
In2_s6	2.00	2	5.25	10.50
	4.00	10	6.75	67.50
	Total	12		

Test Statistics[a]

	In2_s6
Mann-Whitney U	7.500
Wilcoxon W	10.500
Z	-.568
Asymp. Sig. (2-tailed)	.570
Exact Sig. [2*(1-tailed Sig.)]	.606[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 30g. Pairwise Means of Listening Ability and Interaction-Related Items (Barely Capable and Native-Like)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
In2_s6	2.00	2	3.25	6.50
	5.00	19	11.82	224.50
	Total	21		

Test Statistics[a]

	In2_s6
Mann-Whitney U	3.500
Wilcoxon W	6.500
Z	-1.888
Asymp. Sig. (2-tailed)	.059

Exact Sig. [2*(1-tailed Sig.)]	.057[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 30h. Pairwise Means of Listening Ability and Interaction-Related Items (Somewhat Capable and Able to Use Well)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
In2_s6	3.00	5	7.10	35.50
	4.00	10	8.45	84.50
	Total	15		

Test Statistics[a]

	In2_s6
Mann-Whitney U	20.500
Wilcoxon W	35.500
Z	-.589
Asymp. Sig. (2-tailed)	.556
Exact Sig. [2*(1-tailed Sig.)]	.594[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 30i. Pairwise Means of Listening Ability and Interaction-Related Items (Somewhat Capable and Native-Like)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
In2_s6	3.00	5	5.00	25.00
	5.00	19	14.47	275.00

	Total	24		

Test Statistics[a]

	In2_s6
Mann-Whitney U	10.000
Wilcoxon W	25.000
Z	-2.719
Asymp. Sig. (2-tailed)	.007
Exact Sig. [2*(1-tailed Sig.)]	.005[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 30j. Pairwise Means of Listening Ability and Interaction-Related Items (Able to Use Well and Native-Like)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
In2_s6	4.00	10	9.90	99.00
	5.00	19	17.68	336.00
	Total	29		

Test Statistics[a]

	In2_s6
Mann-Whitney U	44.000
Wilcoxon W	99.000
Z	-2.374
Asymp. Sig. (2-tailed)	.018
Exact Sig. [2*(1-tailed Sig.)]	.019[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 31. Means of Speaking Ability and Interaction-Related Items

Ranks

	HLSpeak	N	Mean Rank
In1_s1	1.00	1	14.00
	2.00	5	14.60
	3.00	5	17.60
	4.00	10	24.05
	5.00	17	19.15
	Total	38	
In2_s6	1.00	1	5.50
	2.00	5	9.70
	3.00	5	15.40
	4.00	10	17.80
	5.00	17	25.41
	Total	38	
In3_s14	1.00	1	2.00
	2.00	5	28.80
	3.00	5	16.50
	4.00	10	22.40
	5.00	17	16.97
	Total	38	
In4_s21	1.00	1	2.00
	2.00	5	22.40
	3.00	5	23.50
	4.00	10	17.15
	5.00	17	19.88
	Total	38	
InMean	1.00	1	1.00
	2.00	5	16.90
	3.00	5	16.50
	4.00	10	21.20
	5.00	17	21.24
	Total	38	

Test Statistics[a,b]

	In1_s1	In2_s6	In3_s14	In4_s21	InMean
Chi-Square	3.177	11.746	8.301	4.196	4.086
df	4	4	4	4	4
Asymp. Sig.	.529	.019	.081	.380	.394

a. Kruskal Wallis Test
b. Grouping Variable: HLSpeak

Chart 32a. Pairwise Means of Speaking Ability and Interaction-Related Items (No Ability and Barely Capable)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
In2_s6	1.00	1	2.50	2.50
	2.00	5	3.70	18.50
	Total	6		

Test Statistics[a]

	In2_s6
Mann-Whitney U	1.500
Wilcoxon W	2.500
Z	-.707
Asymp. Sig. (2-tailed)	.480
Exact Sig. [2*(1-tailed Sig.)]	.667[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 32b. Pairwise Means of Speaking Ability and Interaction-Related Items (No Ability and Somewhat Capable)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
In2_s6	1.00	1	2.00	2.00
	3.00	5	3.80	19.00
	Total	6		

Test Statistics[a]

	In2_s6
Mann-Whitney U	1.000
Wilcoxon W	2.000
Z	-.949
Asymp. Sig. (2-tailed)	.343
Exact Sig. [2*(1-tailed Sig.)]	.667[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 32c. Pairwise Means of Speaking Ability and Interaction-Related Items (No Ability and Able to Use Well)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
In2_s6	1.00	1	2.50	2.50
	4.00	10	6.35	63.50
	Total	11		

Test Statistics[a]

	In2_s6
Mann-Whitney U	1.500
Wilcoxon W	2.500
Z	-1.147
Asymp. Sig. (2-tailed)	.252

Exact Sig. [2*(1-tailed Sig.)]	.364[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 32d. Pairwise Means of Speaking Ability and Interaction-Related Items (No Ability and Native-Like)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
In2_s6	1.00	1	1.50	1.50
	5.00	17	9.97	169.50
	Total	18		

Test Statistics[a]

	In2_s6
Mann-Whitney U	.500
Wilcoxon W	1.500
Z	-1.572
Asymp. Sig. (2-tailed)	.116
Exact Sig. [2*(1-tailed Sig.)]	.111[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 32e. Pairwise Means of Speaking Ability and Interaction-Related Items (Barely Capable and Somewhat Capable)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
In2_s6	2.00	5	4.80	24.00
	3.00	5	6.20	31.00

	Total	10		

Test Statistics[a]

	In2_s6
Mann-Whitney U	9.000
Wilcoxon W	24.000
Z	-.808
Asymp. Sig. (2-tailed)	.419
Exact Sig. [2*(1-tailed Sig.)]	.548[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 32f. Pairwise Means of Speaking Ability and Interaction-Related Items (Barely Capable and Able to Use Well)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
In2_s6	2.00	5	5.70	28.50
	4.00	10	9.15	91.50
	Total	15		

Test Statistics[a]

	In2_s6
Mann-Whitney U	13.500
Wilcoxon W	28.500
Z	-1.485
Asymp. Sig. (2-tailed)	.138
Exact Sig. [2*(1-tailed Sig.)]	.165[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 32g. Pairwise Means of Speaking Ability and Interaction-Related Items (Barely Capable and Native-Like)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
In2_s6	2.00	5	4.50	22.50
	5.00	17	13.56	230.50
	Total	22		

Test Statistics[a]

	In2_s6
Mann-Whitney U	7.500
Wilcoxon W	22.500
Z	-2.799
Asymp. Sig. (2-tailed)	.005
Exact Sig. [2*(1-tailed Sig.)]	.003[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 32h. Pairwise Means of Speaking Ability and Interaction-Related Items (Somewhat Capable and Able to Use Well)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
In2_s6	3.00	5	7.20	36.00
	4.00	10	8.40	84.00
	Total	15		

Test Statistics[a]

	In2_s6
Mann-Whitney U	21.000
Wilcoxon W	36.000
Z	-.509
Asymp. Sig. (2-tailed)	.611
Exact Sig. [2*(1-tailed Sig.)]	.679[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 32i. Pairwise Means of Speaking Ability and Interaction-Related Items (Somewhat Capable and Native-Like)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
In2_s6	3.00	5	7.20	36.00
	5.00	17	12.76	217.00
	Total	22		

Test Statistics[a]

	In2_s6
Mann-Whitney U	21.000
Wilcoxon W	36.000
Z	-1.718
Asymp. Sig. (2-tailed)	.086
Exact Sig. [2*(1-tailed Sig.)]	.101[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 32j. Pairwise Means of Speaking Ability and Interaction-Related Items (Able to Use Well and Native-Like)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
In2_s6	4.00	10	10.40	104.00
	5.00	17	16.12	274.00
	Total	27		

Test Statistics[a]

	In2_s6
Mann-Whitney U	49.000
Wilcoxon W	104.000
Z	-1.836
Asymp. Sig. (2-tailed)	.066
Exact Sig. [2*(1-tailed Sig.)]	.074[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 33. Means of Reading Ability and Interaction-Related Items

Ranks

	HLRead	N	Mean Rank
In1_s1	1.00	13	17.54
	2.00	3	16.17
	3.00	5	24.80
	4.00	9	22.72
	5.00	8	17.00
	Total	38	
In2_s6	1.00	13	17.42
	2.00	3	9.00
	3.00	5	21.70
	4.00	9	20.78
	5.00	8	24.00
	Total	38	
In3_s14	1.00	13	21.58
	2.00	3	23.50
	3.00	5	20.90

	4.00	9	17.56
	5.00	8	15.94
	Total	38	
In4_s21	1.00	13	17.73
	2.00	3	17.33
	3.00	5	20.50
	4.00	9	22.28
	5.00	8	19.44
	Total	38	
InMean	1.00	13	17.92
	2.00	3	12.17
	3.00	5	23.40
	4.00	9	22.78
	5.00	8	18.69
	Total	38	

Test Statistics[a,b]

	In1_s1	In2_s6	In3_s14	In4_s21	InMean
Chi-Square	3.091	4.990	2.120	1.116	3.030
df	4	4	4	4	4
Asymp. Sig.	.543	.288	.714	.892	.553

a. Kruskal Wallis Test
b. Grouping Variable: HLRead

Chart 34. Means of Writing Ability and Interaction-Related Items

Ranks

	HLWrite	N	Mean Rank
In1_s1	1.00	14	17.29
	2.00	4	20.38
	3.00	5	23.90
	4.00	9	23.44
	5.00	6	14.50
	Total	38	
In2_s6	1.00	14	16.57

	2.00	4	13.38
	3.00	5	24.50
	4.00	9	20.78
	5.00	6	24.33
	Total	38	
In3_s14	1.00	14	22.39
	2.00	4	17.50
	3.00	5	19.70
	4.00	9	17.39
	5.00	6	17.08
	Total	38	
In4_s21	1.00	14	16.82
	2.00	4	20.25
	3.00	5	20.50
	4.00	9	20.67
	5.00	6	22.67
	Total	38	
InMean	1.00	14	17.25
	2.00	4	16.00
	3.00	5	23.80
	4.00	9	22.39
	5.00	6	19.17
	Total	38	

Test Statistics[a,b]

	In1_s1	In2_s6	In3_s14	In4_s21	InMean
Chi-Square	3.859	4.670	1.772	1.555	2.349
df	4	4	4	4	4
Asymp. Sig.	.425	.323	.778	.817	.672

a. Kruskal Wallis Test
b. Grouping Variable: HLWrite

Chart 35. Means of Heritage Language Ability Score Sums and Modeling-Related Items

Ranks

	HLSumScore	N	Mean Rank
Mo1_s3	4.00	1	1.50
	5.00	1	5.00
	6.00	2	18.00
	7.00	2	9.00
	9.00	1	5.00
	10.00	5	21.40
	11.00	2	14.25
	12.00	3	27.17
	13.00	2	14.25
	14.00	1	13.00
	16.00	4	22.38
	17.00	2	25.25
	18.00	4	23.63
	19.00	2	22.00
	20.00	6	23.08
	Total	38	
Mo2_s7	4.00	1	1.50
	5.00	1	12.00
	6.00	2	18.75
	7.00	2	8.75
	9.00	1	34.00
	10.00	5	22.90
	11.00	2	15.00
	12.00	3	26.33
	13.00	2	22.50
	14.00	1	12.00
	16.00	4	20.63
	17.00	2	28.25
	18.00	4	19.88
	19.00	2	28.25
	20.00	6	13.83
	Total	38	
Mo3_s8	4.00	1	4.00
	5.00	1	25.00
	6.00	2	30.50
	7.00	2	18.75

	9.00	1	25.00
	10.00	5	15.30
	11.00	2	16.25
	12.00	3	24.50
	13.00	2	18.75
	14.00	1	7.50
	16.00	4	16.63
	17.00	2	30.50
	18.00	4	24.63
	19.00	2	14.50
	20.00	6	17.67
	Total	38	
Mo4_s9	4.00	1	1.50
	5.00	1	1.50
	6.00	2	19.00
	7.00	2	27.25
	9.00	1	33.00
	10.00	5	20.20
	11.00	2	13.25
	12.00	3	25.33
	13.00	2	21.75
	14.00	1	8.50
	16.00	4	20.25
	17.00	2	27.25
	18.00	4	15.38
	19.00	2	27.25
	20.00	6	17.58
	Total	38	
Mo5_s18	4.00	1	1.00
	5.00	1	19.00
	6.00	2	17.50
	7.00	2	19.00
	9.00	1	33.00
	10.00	5	14.00
	11.00	2	26.00
	12.00	3	23.67
	13.00	2	26.00
	14.00	1	7.50

	16.00	4	22.50
	17.00	2	26.00
	18.00	4	16.13
	19.00	2	7.50
	20.00	6	23.50
	Total	38	
MoMean	4.00	1	1.00
	5.00	1	4.00
	6.00	2	19.50
	7.00	2	14.25
	9.00	1	22.00
	10.00	5	18.20
	11.00	2	15.50
	12.00	3	29.33
	13.00	2	23.50
	14.00	1	8.00
	16.00	4	18.63
	17.00	2	32.75
	18.00	4	21.75
	19.00	2	20.50
	20.00	6	18.92
	Total	38	

Test Statistics[a,b]

	Mo1_s3	Mo2_s7	Mo3_s8	Mo4_s9	Mo5_s18	MoMean
Chi-Square	13.777	14.270	11.926	13.744	14.672	12.381
df	14	14	14	14	14	14
Asymp. Sig.	.466	.430	.612	.469	.401	.576

a. Kruskal Wallis Test

b. Grouping Variable: HLSumScore

Chart 36. Means of Listening Ability and Modeling-Related Items

Ranks

	HLListen	N	Mean Rank
Mo1_s3	1.00	2	3.25
	2.00	2	18.00
	3.00	5	10.30
	4.00	10	17.60
	5.00	19	24.79
	Total	38	
Mo2_s7	1.00	2	6.75
	2.00	2	18.75
	3.00	5	14.90
	4.00	10	21.50
	5.00	19	21.08
	Total	38	
Mo3_s8	1.00	2	14.50
	2.00	2	30.50
	3.00	5	20.00
	4.00	10	13.45
	5.00	19	21.92
	Total	38	
Mo4_s9	1.00	2	1.50
	2.00	2	19.00
	3.00	5	20.50
	4.00	10	17.95
	5.00	19	22.00
	Total	38	
Mo5_s18	1.00	2	10.00
	2.00	2	17.50
	3.00	5	16.70
	4.00	10	19.30
	5.00	19	21.55
	Total	38	
MoMean	1.00	2	2.50
	2.00	2	19.50
	3.00	5	15.10
	4.00	10	15.90
	5.00	19	24.34
	Total	38	

Test Statistics[a,b]

	Mo1_s3	Mo2_s7	Mo3_s8	Mo4_s9	Mo5_s18	MoMean
Chi-Square	13.342	4.520	6.944	6.852	2.826	10.200
df	4	4	4	4	4	4
Asymp. Sig.	.010	.340	.139	.144	.587	.037

a. Kruskal Wallis Test

b. Grouping Variable: HLListen

Chart 37a. Pairwise Means of Listening Ability and Modeling-Related Items (No Ability and Barely Capable)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Mo1_s3	1.00	2	1.75	3.50
	2.00	2	3.25	6.50
	Total	4		
MoMean	1.00	2	2.00	4.00
	2.00	2	3.00	6.00
	Total	4		

Test Statistics[a]

	Mo1_s3	MoMean
Mann-Whitney U	.500	1.000
Wilcoxon W	3.500	4.000
Z	-1.225	-.775
Asymp. Sig. (2-tailed)	.221	.439
Exact Sig. [2*(1-tailed Sig.)]	.333[b]	.667[b]

a. Grouping Variable: HLListen

b. Not corrected for ties.

Chart 37b. Pairwise Means of Listening Ability and Modeling-Related Items (No Ability and Somewhat Capable)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Mo1_s3	1.00	2	2.00	4.00
	3.00	5	4.80	24.00
	Total	7		
MoMean	1.00	2	1.50	3.00
	3.00	5	5.00	25.00
	Total	7		

Test Statistics[a]

	Mo1_s3	MoMean
Mann-Whitney U	1.000	.000
Wilcoxon W	4.000	3.000
Z	-1.608	-1.936
Asymp. Sig. (2-tailed)	.108	.053
Exact Sig. [2*(1-tailed Sig.)]	.190[b]	.095[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 37c. Pairwise Means of Listening Ability and Modeling-Related Items (No Ability and Able to Use Well)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Mo1_s3	1.00	2	1.75	3.50
	4.00	10	7.45	74.50
	Total	12		

MoMean	1.00	2	1.50	3.00
	4.00	10	7.50	75.00
	Total	12		

Test Statistics[a]

	Mo1_s3	MoMean
Mann-Whitney U	.500	.000
Wilcoxon W	3.500	3.000
Z	-2.089	-2.164
Asymp. Sig. (2-tailed)	.037	.031
Exact Sig. [2*(1-tailed Sig.)]	.030[b]	.030[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 37d. Pairwise Means of Listening Ability and Modeling-Related Items (No Ability and Native-Like)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Mo1_s3	1.00	2	2.25	4.50
	5.00	19	11.92	226.50
	Total	21		
MoMean	1.00	2	2.00	4.00
	5.00	19	11.95	227.00
	Total	21		

Test Statistics[a]

	Mo1_s3	MoMean
Mann-Whitney U	1.500	1.000
Wilcoxon W	4.500	4.000
Z	-2.332	-2.180

Asymp. Sig. (2-tailed)	.020	.029
Exact Sig. [2*(1-tailed Sig.)]	.019[b]	.019[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 37e. Pairwise Means of Listening Ability and Modeling-Related Items (Barely Capable and Somewhat Capable)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Mo1_s3	2.00	2	4.50	9.00
	3.00	5	3.80	19.00
	Total	7		
MoMean	2.00	2	4.00	8.00
	3.00	5	4.00	20.00
	Total	7		

Test Statistics[a]

	Mo1_s3	MoMean
Mann-Whitney U	4.000	5.000
Wilcoxon W	19.000	20.000
Z	-.402	.000
Asymp. Sig. (2-tailed)	.688	1.000
Exact Sig. [2*(1-tailed Sig.)]	.857[b]	1.000[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 37f. Pairwise Means of Listening Ability and Modeling-Related Items (Barely Capable and Able to Use Well)

Mann-Whitney Test

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Mo1_s3	2.00	2	6.25	12.50
	4.00	10	6.55	65.50
	Total	12		
MoMean	2.00	2	6.50	13.00
	4.00	10	6.50	65.00
	Total	12		

Test Statistics[a]

	Mo1_s3	MoMean
Mann-Whitney U	9.500	10.000
Wilcoxon W	12.500	65.000
Z	-.111	.000
Asymp. Sig. (2-tailed)	.912	1.000
Exact Sig. [2*(1-tailed Sig.)]	.909[b]	1.000[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 37g. Pairwise Means of Listening Ability and Modeling-Related Items (Barely Capable and Native-Like)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Mo1_s3	2.00	2	8.50	17.00
	5.00	19	11.26	214.00
	Total	21		
MoMean	2.00	2	10.50	21.00

5.00	19	11.05	210.00
Total	21		

Test Statistics[a]

	Mo1_s3	MoMean
Mann-Whitney U	14.000	18.000
Wilcoxon W	17.000	21.000
Z	-.688	-.121
Asymp. Sig. (2-tailed)	.492	.904
Exact Sig. [2*(1-tailed Sig.)]	.610[b]	.952[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 37h. Pairwise Means of Listening Ability and Modeling-Related Items (Somewhat Capable and Able to Use Well)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Mo1_s3	3.00	5	5.50	27.50
	4.00	10	9.25	92.50
	Total	15		
MoMean	3.00	5	8.40	42.00
	4.00	10	7.80	78.00
	Total	15		

Test Statistics[a]

	Mo1_s3	MoMean
Mann-Whitney U	12.500	23.000
Wilcoxon W	27.500	78.000
Z	-1.574	-.247
Asymp. Sig. (2-tailed)	.116	.805

Exact Sig. [2*(1-tailed Sig.)]	.129[b]	.859[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 37i. Pairwise Means of Listening Ability and Modeling-Related Items (Somewhat Capable and Native-Like)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Mo1_s3	3.00	5	5.20	26.00
	5.00	19	14.42	274.00
	Total	24		
MoMean	3.00	5	6.70	33.50
	5.00	19	14.03	266.50
	Total	24		

Test Statistics[a]

	Mo1_s3	MoMean
Mann-Whitney U	11.000	18.500
Wilcoxon W	26.000	33.500
Z	-2.787	-2.086
Asymp. Sig. (2-tailed)	.005	.037
Exact Sig. [2*(1-tailed Sig.)]	.007[b]	.036[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 37j. Pairwise Means of Listening Ability and Modeling-Related Items (Able to Use Well and Native-Like)

Ranks

	HLListen	N	Mean Rank	Sum of Ranks
Mo1_s3	4.00	10	10.85	108.50
	5.00	19	17.18	326.50
	Total	29		
MoMean	4.00	10	10.60	106.00
	5.00	19	17.32	329.00
	Total	29		

Test Statistics[a]

	Mo1_s3	MoMean
Mann-Whitney U	53.500	51.000
Wilcoxon W	108.500	106.000
Z	-2.040	-2.029
Asymp. Sig. (2-tailed)	.041	.042
Exact Sig. [2*(1-tailed Sig.)]	.056[b]	.045[b]

a. Grouping Variable: HLListen
b. Not corrected for ties.

Chart 38. Means of Speaking Ability and Modeling-Related Items

Ranks

	HLSpeak	N	Mean Rank
Mo1_s3	1.00	1	1.50
	2.00	5	11.80
	3.00	5	13.90
	4.00	10	19.05
	5.00	17	24.74
	Total	38	
Mo2_s7	1.00	1	1.50
	2.00	5	13.40
	3.00	5	20.60
	4.00	10	20.35
	5.00	17	21.53
	Total	38	

Mo3_s8	1.00	1	4.00
	2.00	5	24.70
	3.00	5	20.00
	4.00	10	13.45
	5.00	17	22.29
	Total	38	
Mo4_s9	1.00	1	1.50
	2.00	5	18.80
	3.00	5	22.80
	4.00	10	16.80
	5.00	17	21.38
	Total	38	
Mo5_s18	1.00	1	1.00
	2.00	5	18.40
	3.00	5	22.30
	4.00	10	17.90
	5.00	17	21.03
	Total	38	
MoMean	1.00	1	1.00
	2.00	5	14.30
	3.00	5	19.90
	4.00	10	16.25
	5.00	17	23.91
	Total	38	

Test Statistics[a,b]

	Mo1_s3	Mo2_s7	Mo3_s8	Mo4_s9	Mo5_s18	MoMean
Chi-Square	10.905	5.163	7.888	4.423	4.154	7.465
df	4	4	4	4	4	4
Asymp. Sig.	.028	.271	.096	.352	.386	.113

a. Kruskal Wallis Test

b. Grouping Variable: HLSpeak

Chart 39a. Pairwise Means of Speaking Ability and Modeling-Related Items (No Ability and Barely Capable)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
Mo1_s3	1.00	1	1.00	1.00
	2.00	5	4.00	20.00
	Total	6		

Test Statistics[a]

	Mo1_s3
Mann-Whitney U	.000
Wilcoxon W	1.000
Z	-1.555
Asymp. Sig. (2-tailed)	.120
Exact Sig. [2*(1-tailed Sig.)]	.333[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 39b. Pairwise Means of Speaking Ability and Modeling-Related Items (No Ability and Somewhat Capable)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
Mo1_s3	1.00	1	1.00	1.00
	3.00	5	4.00	20.00
	Total	6		

Test Statistics[a]

	Mo1_s3
Mann-Whitney U	.000
Wilcoxon W	1.000

Z	-1.485
Asymp. Sig. (2-tailed)	.137
Exact Sig. [2*(1-tailed Sig.)]	.333[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 39c. Pairwise Means of Speaking Ability and Modeling-Related Items (No Ability and Able to Use Well)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
Mo1_s3	1.00	1	1.00	1.00
	4.00	10	6.50	65.00
	Total	11		

Test Statistics[a]

	Mo1_s3
Mann-Whitney U	.000
Wilcoxon W	1.000
Z	-1.667
Asymp. Sig. (2-tailed)	.096
Exact Sig. [2*(1-tailed Sig.)]	.182[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 39d. Pairwise Means of Speaking Ability and Modeling-Related Items (No Ability and Native-Like)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
Mo1_s3	1.00	1	1.50	1.50

	5.00	17	9.97	169.50
	Total	18		

Test Statistics[a]

	Mo1_s3
Mann-Whitney U	.500
Wilcoxon W	1.500
Z	-1.761
Asymp. Sig. (2-tailed)	.078
Exact Sig. [2*(1-tailed Sig.)]	.111[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 39e. Pairwise Means of Speaking Ability and Modeling-Related Items (Barely Capable and Somewhat Capable)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
Mo1_s3	2.00	5	5.10	25.50
	3.00	5	5.90	29.50
	Total	10		

Test Statistics[a]

	Mo1_s3
Mann-Whitney U	10.500
Wilcoxon W	25.500
Z	-.447
Asymp. Sig. (2-tailed)	.655
Exact Sig. [2*(1-tailed Sig.)]	.690[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 39f. Pairwise Means of Speaking Ability and Modeling-Related Items (Barely Capable and Able to Use Well)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
Mo1_s3	2.00	5	5.30	26.50
	4.00	10	9.35	93.50
	Total	15		

Test Statistics[a]

	Mo1_s3
Mann-Whitney U	11.500
Wilcoxon W	26.500
Z	-1.700
Asymp. Sig. (2-tailed)	.089
Exact Sig. [2*(1-tailed Sig.)]	.099[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 39g. Pairwise Means of Speaking Ability and Modeling-Related Items (Barely Capable and Native-Like)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
Mo1_s3	2.00	5	6.40	32.00
	5.00	17	13.00	221.00
	Total	22		

Test Statistics[a]

	Mo1_s3

Mann-Whitney U	17.000
Wilcoxon W	32.000
Z	-2.193
Asymp. Sig. (2-tailed)	.028
Exact Sig. [2*(1-tailed Sig.)]	.048[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 39h. Pairwise Means of Speaking Ability and Modeling-Related Items (Somewhat Capable and Able to Use Well)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
Mo1_s3	3.00	5	6.10	30.50
	4.00	10	8.95	89.50
	Total	15		

Test Statistics[a]

	Mo1_s3
Mann-Whitney U	15.500
Wilcoxon W	30.500
Z	-1.212
Asymp. Sig. (2-tailed)	.225
Exact Sig. [2*(1-tailed Sig.)]	.254[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 39i. Pairwise Means of Speaking Ability and Modeling-Related Items (Somewhat Capable and Native-Like)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
Mo1_s3	3.00	5	6.90	34.50
	5.00	17	12.85	218.50
	Total	22		

Test Statistics[a]

	Mo1_s3
Mann-Whitney U	19.500
Wilcoxon W	34.500
Z	-1.974
Asymp. Sig. (2-tailed)	.048
Exact Sig. [2*(1-tailed Sig.)]	.071[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 39j. Pairwise Means of Speaking Ability and Modeling-Related Items (Able to Use Well and Native-Like)

Ranks

	HLSpeak	N	Mean Rank	Sum of Ranks
Mo1_s3	4.00	10	10.75	107.50
	5.00	17	15.91	270.50
	Total	27		

Test Statistics[a]

	Mo1_s3
Mann-Whitney U	52.500
Wilcoxon W	107.500
Z	-1.751
Asymp. Sig. (2-tailed)	.080
Exact Sig. [2*(1-tailed Sig.)]	.103[b]

a. Grouping Variable: HLSpeak
b. Not corrected for ties.

Chart 40. Means of Reading Ability and Modeling-Related Items

Ranks

	HLRead	N	Mean Rank
Mo1_s3	1.00	13	18.46
	2.00	3	7.67
	3.00	5	18.40
	4.00	9	22.61
	5.00	8	22.81
	Total	38	
Mo2_s7	1.00	13	20.12
	2.00	3	14.00
	3.00	5	22.70
	4.00	9	20.50
	5.00	8	17.44
	Total	38	
Mo3_s8	1.00	13	20.38
	2.00	3	15.00
	3.00	5	21.20
	4.00	9	21.11
	5.00	8	16.88
	Total	38	
Mo4_s9	1.00	13	21.46
	2.00	3	10.50
	3.00	5	21.30
	4.00	9	18.22
	5.00	8	20.00
	Total	38	
Mo5_s18	1.00	13	18.50
	2.00	3	19.83
	3.00	5	22.30
	4.00	9	19.28
	5.00	8	19.50

	Total	38	
MoMean	1.00	13	19.38
	2.00	3	9.00
	3.00	5	23.50
	4.00	9	21.11
	5.00	8	19.31
	Total	38	

Test Statistics[a,b]

	Mo1_s3	Mo2_s7	Mo3_s8	Mo4_s9	Mo5_s18	MoMean
Chi-Square	5.386	1.653	1.476	2.804	.486	3.546
df	4	4	4	4	4	4
Asymp. Sig.	.250	.799	.831	.591	.975	.471

a. Kruskal Wallis Test

b. Grouping Variable: HLRead

Chart 41. Means of Writing Ability and Modeling-Related Items

Ranks

	HLWrite	N	Mean Rank
Mo1_s3	1.00	14	17.79
	2.00	4	10.63
	3.00	5	22.80
	4.00	9	21.89
	5.00	6	23.08
	Total	38	
Mo2_s7	1.00	14	19.21
	2.00	4	19.88
	3.00	5	25.00
	4.00	9	20.50
	5.00	6	13.83
	Total	38	
Mo3_s8	1.00	14	19.46
	2.00	4	18.75

	3.00	5	25.90
	4.00	9	17.56
	5.00	6	17.67
	Total	38	
Mo4_s9	1.00	14	20.29
	2.00	4	17.50
	3.00	5	23.50
	4.00	9	18.22
	5.00	6	17.58
	Total	38	
Mo5_s18	1.00	14	19.54
	2.00	4	19.63
	3.00	5	22.30
	4.00	9	15.17
	5.00	6	23.50
	Total	38	
MoMean	1.00	14	18.39
	2.00	4	17.13
	3.00	5	27.20
	4.00	9	18.39
	5.00	6	18.92
	Total	38	

Test Statistics[a,b]

	Mo1_s3	Mo2_s7	Mo3_s8	Mo4_s9	Mo5_s18	MoMean
Chi-Square	4.721	3.086	2.354	1.217	2.791	2.851
df	4	4	4	4	4	4
Asymp. Sig.	.317	.544	.671	.875	.593	.583

a. Kruskal Wallis Test

b. Grouping Variable: HLWrite